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BULBS FOR POTS

AND SPRING PLANTING IN THE GARDEN



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A CATALOG OF THE BULBS OF THE AMARYLLIS, IRIS, ORCHID AND
OTHER PLANT FAMILIES

U.S. Department of Agriculture

SPECIAL ARTICLES: How To Grow Amaryllis;—Gladiolus;—Gloxinias and Achimines;—Tuberous Begonias;—Billbergias, etc.; How to Make Cymbidium Orchids Flower. Full culture directions for all plants listed.

A Personal Letter, to you.

SPRING 1949



CECIL HOUDYSHEL

1412 Third St.

La Verne, California

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A Personal Letter,—to you

Dear Floral Friends,

I have recently felt flattered by having several customers inquire about the pronunciation of Houdyshel. My nose has not been itching so this was my first intimation that any one had been talking about me. It must not have been bad, or they would just call me "Old Who-dee-shell," and let it go at that.

There's where the rub comes. Sometimes a far away customer is visiting So. Calif. and drops in to call on us. That is pleasing to us of course, but usually Mrs. Houdyshel or I are addressed as Mr. and Mrs. Who-dee-shell, and no offense is intended. Naturally we can't take offense but it does deflate us a little.

Our trade mark had a two fold purpose when we adopted it. The hands are clasped as in a greeting, when one is saying "Howdy do." They are within a shell. Thus the pronunciation is illustrated, Howdy-shell, spelled Houdyshel.

Only one person in 25 years since we adopted this as our trade mark has volunteered the information that our trade mark taught them how to pronounce our name. A few do not at once grasp the idea even when we explain. We explained the clasped hands in a shell once to a Jap boy, recently arrived from Japan, who was having a hard tussle with our language. A bright look of complete understanding finally spread over his bland, oriental countenance and thereafter he always addressed us as "Mr. Pleesto Meetchashell," with such complacent satisfaction that I did not have the heart to correct him further.

All this is a very solemn matter to me. Fifty or 100 years from now I may not be here to tell people how to pronounce this name and yet Crinum Cecil Houdyshel surely will be. One expert recently stated, "This is probably the outstanding Crinum hybrid of the whole world." If it is, it will live like the 150 year old Amaryllis Johnsonii. How terrible it will be if the popular pronunciation becomes Crinum Cecil Who-dee-shel!

I have hinted that another meaning is also hidden in our trade mark. The clasped hands also signify friendship and fellowship. This is no pose on our part, when I say that Mrs. Houdyshel and I are interested in your garden success. We are also interested in your welfare, good health and happiness and believe most sincerely that gardens and flowers contribute to them. We try to reflect this friendly feeling in all our relations with our customers. We want you to feel the same toward us.

Naturally, we try to make a living. But I assure you we are able to forget profit, when a customer's interest is against a proposed purchase. Once we had a Colorado customer who insisted on buying some tropical perennial plants to grow outdoors. We explained fully why he could not grow them but the customer did not believe us and we finally had to refuse a \$50.00 order, thus offending him.

Pursuant to our policy, we do not publish testimonials. We try not to use so called "salesmanship," of the high pressure kind, especially. We do try to offer only those items to a customer which are likely to succeed for him and to please him.

We also try, in our catalogs, to give you the very best culture advice based mostly upon our long experience. We do try to describe plants honestly and fairly, and to encourage a love for flowers and garden. We try to sell for the lowest prices possible.

The increase in postal rates, ranging from 10% to as high as 70% has presented a very difficult situation. We have not increased any prices to offset this. On the contrary, we have lowered several prices in this catalog.

We are very heartily in sympathy with the wide-spread opposition to high prices of all commodities. We have advised before and we still believe that buyers have as good a right to strike against high prices as workers have to strike against low wages. We price our bulbs according to their real value as garden items and quantity of stock available. Because Haemanthus Katherinae is very rare and very beautiful, perhaps the most beautiful of bulbs, and very few bulbs are available, (it is indeed rare,) it is priced at \$6.50 per bulb. Only a year ago it was priced at \$10.00 each. Other rare Blood Lilies cost a little more, than more common but also desirable bulbs.

I am happy to call your attention to our extended list of Fancy Leaf Caladiums, under the Arum Family. Also to the listing of Blood lilies or Haemanthus under the Amaryllis Family. There has been much interest in these recently because of their beauty, their rarity and their unusual appearance. Billbergias, (last page), and Maricas, (Iris Fam.), too are unusual and beautiful.

The Saintpaulias are making such a bid for popularity that they are becoming almost our most popular house plants. Please read our announcement about them under the Gloxina Family or Gesneraceae. Our new aluminum greenhouse is almost ready for glass. Then a heating plant and benches will be installed. Therein we shall propagate Saintpaulias and hope to have a large list of varieties to distribute in April. That is early enough to begin shipping as these tender plants cannot be safely shipped in winter. Those interested in acquiring Saintpaulias should apply early for our price list which will be sent out in April.

Under Gesneraceae also please note our extended list of Achimines. These tiny tubers produce lovely plants with still more interesting and lovely flowers and they are very difficult to obtain.

You who grow Cymbidium orchids and have had trouble in getting them to flower, deserve our help. They flower well for us and we tell you how to do it. See Cymbidiums, under Orchid Fam. We offer flowering size clumps at greatly reduced prices that should give you flowers next year.

Our large new aluminum greenhouse is costing us a lot and I must admit we have had to go in debt. But it will help us to serve you better.

I am confident that our customers will support our efforts and give us their business, because, as I have explained before, we cannot publish a catalog giving you much information about plants and their culture, and send it to 35,000 customers free of charge, if they accept the free culture advice and thereby benefit but buy their bulbs elsewhere. Names remain on our mailing list two years. If no orders are credited on your filing card your name is dropped.

Most of you have already read about the California freeze. We will be getting inquiries, so I will answer here. Our Rancho De Las Flores, (Ranch Of The Flowers) is located where we seldom have temperatures below 30°. But sometimes it may go to 28°. We are able to grow Cymbidium orchids out doors and up to this year have had only one flower scape to freeze.

But on the night of Jan. 3, the temperature at 6 P. M. was several degrees below freezing. By 9 P. M. it was 20° and at 3:30 A. M. when I arose it was still 20°. Between that time and 6 A. M. I read the thermometer several times and one reading was 19°, which probably lasted only a short time. I examined the following plants: Cymbidiums, Laelias, Odontoglossums, Epidendrum obrienianum, E. Burtonii, Epidendrum,—those with pseudo-bulbs, Lycaste, Stanhopea, Schomburgkia, Cypripedium, Zygopetalum, and other orchids. Also Philoden-drum, Haemanthus, Clivias, Amaryllis advena, Lycoris, Vetheimia, Strelitzia, etc. All had foliage frozen stiff. The flower spikes of Cymbidium and Zygopatalum orchids were frozen hard. A crock of water had almost 1" of ice. A few hydrants were frozen and on thawing turned loose streams of water.

We lost nearly all of our crop of Cymbidium flowers, I think. There were about 100 spikes started which should easily give 1,500 flowers. Their wholesale value at before the freeze prices would be \$750. They have now doubled in price because most of the growers suffered the same fate. We still hope that a few of the short, recently started scapes were protected by the foliage and escaped freezing.

But none of the Cymbidium plants were harmed in the slightest degree. About the only plants harmed seriously were Epidendrum Burtoni, and only a very few of the Clivias, not over 1%. Our greenhouse orchids were not affected, of course.

Even at that, we were lucky. It could have been worse.

The entire California Cut Flower Industry lost about \$13,500,000. Citrus growers more than that, but most of their crops were saved by smudging. The Imperial Valley vegetables are almost a complete loss. They will of course re-plant and raise later crops.

For all of you, I wish a happy, prosperous year with good health and a wonderful garden to make you happy. For America, you will all join me in

the prayer that we may remain at peace with the entire world; that labor and capital may work in harmony which is necessary to the industrial expansion so essential to our safety as a nation as well as to our program of aid to other democracies.

Sincerely,
Cecil Houdyshel

P. S. Don't forget please that Mrs. Houdyshel has made some very interesting Kodachrome slides of Amaryllids, Iris, Orchids, etc. She rents these for a modest price to garden clubs or others. Write to her if interested.

TERMS AND INSTRUCTIONS FOR ORDERING

The prices in this catalog cancel all former quotations.

California Customers must add 2½% Sales Tax.

Remit by check or M. O. If stamps are sent, send \$1.05 for \$1.00. We do not carry accounts. Remit the full amount of your order in advance.

C.O.D. We do not ship bulbs C.O.D.

Postage prepaid on orders of \$1.00 or over. Under \$1.00, add 10c extra.

Insurance and Special Handling. Please note changes in rates. Insurance up to \$5.00 value costs 5c. \$5.00 to \$10.00 costs 10c. \$10.00 to \$25.00 costs 15c. Over \$25.00 costs in proportion to \$25.00 rate. **Special Handling** gives your package the same handling as First Class mail and hastens delivery. More safe. Up to 2 lbs. costs 15c. 2 lbs. to 20 lbs. costs 20c. For each package. Heavier in proportion.

Insurance is especially important and is done only at your expense. We can replace an insured package if lost or if damaged by improper handling, promptly as we can then collect the value. Be sure to remit for insurance. Insurance however does not cover loss by freezing. That is our risk and we try to ship when safe and we insulate well when shipping to north in winter.

Express is safer for large or valuable shipments especially to the north in winter. It costs more than parcel post and is done at your expense. We add extra bulbs to approximate value of postage saved to us.

Prices given are usually for one bulb. A dozen costs 10 times the price of one, 6 are sold at doz. rate. Unless otherwise stated, 100 cost 70 times the cost of one or 7 times the cost of one doz. 50 are sold for the price of 4 doz., not at 100 rate.

Wholesale. We do not give discounts to dealers on small quantities of items from this catalog. Only a very few items herein can be quoted below the quantity rates, when given. But in most cases those rates are about equal to usual wholesale prices. Upon inquiry we will quote prices on desired items if able.

Foreign orders. Our prices include prepaid delivery as far as our 8th postal zone. We can usually prepay to Mexico or Canada. It is best to include some extra on export orders. If too much, we add extra bulbs. The 100 rate prices do not apply on export orders unless customer pays transportation. Air mail is often advisable for export orders but expensive.

Canadian Customers. Apply to Sec. of Destructive Insect and Pest Act, Advisory Board, Ottawa, Ont. (or ask your P.M.) for Permit and mailing label and send these with your order.

Errors. We make them but correct them, if notified at once.

Partial Shipments. If everything is not included in first shipment a slip so stating is enclosed. When final shipment is made, another slip so states. Check them with order and if short, notify us at once.

Guarantee. Our bulbs are true to name and healthy, but we do not guarantee results since we do not control the conditions under which they are grown. If, in your opinion, our bulbs are not up to our specifications, notify us at once. If you are not then satisfied with our explanation, they may be returned. No refund will be made if planted unless circumstances indicate bulbs were at fault.

Culture directions are in this catalog, hence none are sent with bulbs.

Catalogs. Spring Catalog, Jan. 15. Fall Catalog, Aug. 15. Names are dropped from our mailing list if you do not buy for two years. If not interested, please

ask P.M. to return this catalog at our expense, thus saving paper, labor and postage.

Correspondence. We enjoy your friendly letters. I answer them twice a year in our Introductory Letter. It is a fact that I work twelve hours a day or more and am still unable to answer all letters requiring it. Read entire catalog before asking questions.

Identifying Bulbs. We usually can. Send flower, foliage and if possible, a bulb. Give all facts known. Enclose self-addressed postcard and attach your letter to outside of package. We do not attempt to identify horticultural varieties of Gladiolus, Iris, etc.

Time of Delivery. All bulbs are delivered within range of correct planting dates.

GENERAL CULTURAL DIRECTIONS

Rich sandy loam is the best soil. Only a few, like Bearded Iris, prefer heavy soil. A very few, like Gloriosas, must have sandy soil.

All soils require the addition of much humus. Compost all garbage, weeds, leaves, cut branches and manures. When rotted, add to soil and thoroly mix.

Fertilizers. We recommend only animal manures and compost. Fresh manure can be used on a few plants, that are growing vigorously, as a very light mulch, but after flowering. Too much fertilizer before flowering time may almost or wholly stop the flowers. When the growth of a plant becomes abnormally rapid it is unlikely to flower or produce fruit. Your over-fertilized peach tree is likely to produce no fruit.

Do not fertilize a plant in dry soil, or use any fertilizer, unless thoroly rotted in a compost heap, in the soil before planting bulbs, seeds or plants. Water lawns, trees, any plants well the day before applying fertilizer and again a few days after application.

After blooming, many neglect their bulbs. As a result the bulbs do not flower the following year. For success one must continue to give good culture. This is the time to fertilize, irrigate and cultivate frequently, until yellowing foliage indicates the bulb is becoming dormant. During this growth period next year's flower buds are formed.

Depth of planting and distance apart often cause too much concern. Bulbs usually have sufficient adaptability to do well under widely varying conditions. If left in one place a few years, most bulbs adjust themselves to their preferred depth. Approximately, bulbs should be about 2 or 3 times their diameter apart unless their habit of growth is spreading—like Ranunculus. In such cases plant farther apart. Small bulbs as large as Daffodils may be 4" to 6" deep. Bulbs with a heavy erect stem need deep planting in order to remain erect. Plant deeper in light sandy soils than in heavy soils and in cold climates to protect them from frost.

Pests. Snails and Slugs are most serious garden pests. We have found the very best control is furnished by **Bug-geta Pellets**. They also kill cut worms and grasshoppers. They can be dropped or broadcast. Because so easy to apply, they are more economical than powders which require you to stoop in placing them. Buy the economical way, in 25 lb. bags. Price \$3.75 f.o.b. La Verne. **Ants** are a pest in the house and in the garden. They distribute **Aphis** and **Mealy bug** and tend them like domestic animals. Best control is **Ant-B-Gon**. Set of 4 dispensers, filled, 60c f.o.b. La Verne. Best to send by mail. Ask your P.M. the amount of postage required on 2 lbs. from La Verne and send this amount above the price of 60c. **Ant-B-Gon** liquid for refilling, 4 oz. 25c postpaid. **Mealy bugs** are a serious pest to garden and house plants. They are everywhere and must be controlled. First destroy ants. Wash them off of house plants and use a spray of water from hose to dislodge from garden plants. You will still need to spray with **Garden Volc**. Use any type of sprayer and a small fly sprayer will do for house plants. Price, **Garden Volc**, 4 oz. for 30c postpaid. Use Garden Volc also against Scale Insects.

Garden Success requires aggressive effort on your part. One can always blame the bulbs for failure, but it does not advance one's knowledge of gardening.

ACID AND ALKALINE SOILS

Most plants thrive in mildly acid, neutral or mildly alkaline soils. But others do not have so wide a range of tolerance. Rhododendrons, Azaleas, Camellias, Gardenias, Zantedeschias, Caladiums (and other members of Arum family), Nérines, Haemanthus, Gloxinias, Begonias, Orchids and most shade loving plants require an acid soil. Some like Gladiolus prefer mildly acid to neutral soils Beard-ed Iris do best in neutral to alkaline soils. The acid-alkali balance depends upon the concentration of hydrogen ions in a saturated solution. This is expressed in pH units. pH 7 is neutral. Below that the acidity increases; above it the alkalinity increases. For the mathematical, I will explain that the numeral is the negative logarithm denoting the concentration of hydrogen ions in gram atoms per liter.

Due to advance in prices we offer no soil testing kits at present. I suggest you purchase some blue litmus paper at drug store for a few cents. Moisten a bit of soil and press litmus paper against it. If paper remains blue after 10 minutes, the soil is alkaline or neutral. If it turns red, it is acid. Positive indication that soil is neutral is shown when neither red or blue litmus paper changes color. Degree of acidity or alkalinity is approximately indicated by final intensity of color as well as by rapidity of change. We still have a few kits at \$1.25 ea.

Canadian Peat. We can furnish this to near-by customers for \$6.00 per bale, or 10 lbs. for \$1.00. Or we will send 25 lbs. net in a strong burlap sack for \$2.00 f.o.b. La Verne. Buy locally if you can. If ordered, ask your Express Agent the rate.

Rootone induces quick rooting of bulbs, cuttings and the sprouting of seed. As the result of its action bulbs make a more vigorous root system and grow larger and produce greater increase. Slightly moisten the base of the bulb and cover with a thin film of Rootone. Dip end of cuttings into the powder. Tumble seeds in a jar or seed envelope with the powder. Roll the coated seed out and save remaining powder. Price, one-half ounce, a good supply, 50c postpaid. 1-lb. can, for very extensive planting, \$5.00.

Vitamin B-1 is a useful stimulant for plants, we believe. We have used it in transplanting bulbs and other plants with apparent usefulness. 100 tablets, 75c.

Directions for use, applying only to our own tablets. In transplanting bulbs or any plants, loose roots, dissolve 5 tablets in 1 gal. of water. Soak roots in this 15 to 30 min. Pour solution around plant when set. To stimulate growing plants, for the first application, dissolve one tab. in 2 gal. water. For succeeding waterings, use 1 tab. to 4 gal water once a week. **Warning.** Do not soak dormant bulbs in Vit. B-1. It rots them.

Sources of more information. Subscribe for Flower Grower, Albany, New York. \$2.50 per year. \$4.00 for 2 years. Send directly to them.

I cannot too strongly recommend Flower Grower. It is by far the most important garden magazine. It is wholly devoted to the subject of flower gardening. You will find therein articles written by leading experts and growers who have the knowledge of experience. Too often, writers "read up" on a subject and the readers may be misled.

Plant Societies are of the greatest value to amateur gardeners. Some of them issue year books or publications of great value. Others have meetings and lectures. I belong to and recommend those mentioned below but there are many local groups as well as national, not mentioned, that are of great value.

American Plant Life Society. Note mention of this under Amaryllidaceae. **The American Horticultural So.** publishes the National Horticultural Magazine, quarterly, which members receive. This beautifully printed and illustrated magazine covers entire field of horticulture. Send \$5.00 annual dues, to Am. Horticultural So., 821 Washington Loan and Trust Bldg., Washington 4, D.C. **The Midwest Hemerocallis So.**, send \$3.00 to Pearl Sherwood, Atlantic, Iowa. **North American Gladiolus Council**, send \$1.00 to A. Bazdorf, Lincoln Park, N. J.

GARDEN REFERENCE BOOKS

Bailey's Cyclopedia of Horticulture. This 3-vol. set of over 3,600 pages describes almost every cultivated plant and has a wealth of culture information.

On Orchids alone, this work is most valuable for its descriptions and culture instructions for almost every orchid in cultivation. The same is true for all types of bulbs, plants, shrubs or trees. Price \$37.50. This is the most monumental work in any language on the entire field of Horticulture. It is an ideal gift for a plant lover.

Hortus Second (Bailey). A Concise Dictionary of Gardening. This 778-page volume lists and describes nearly every plant offered in catalogs, and some that are not in the Cyclopedias of Hort. It contains only a few culture hints. Both works should be in every garden library. Price, \$7.50.

The above publications are subject to price changes, without notice by the publishers. In the case that prices again rise on these or any books listed here we will notify the customer. The customer may then accept or cancel order.

A Southern Garden, by Elizabeth Lawrence, a handbook for the Middle South. A most useful handbook for all gardeners, north or south. Bulbs and all garden plants. 251 pages. Price \$3.00

Enjoy Your House Plants. Excellent handbook of window gardening by Dorothy Jenkins and Helen Van Pelt Wilson, 238 pages. Price \$2.50.

Begonias And How To Grow Them. Bessie Raymond Buxton. Invaluable in growing all Begonias, including the Tuberous. 161 pp. \$3.00.

American Orchid Culture. Edward A. White. This is a complete handbook of American Orchid Culture for both commercial and amateur growers. Most interesting accounts of Orchid hunting trips, in many lands, are related. 14 beautiful color plates and many other illustrations. A beautiful, interesting, useful book. 276 pp. \$6.00.

Greenhouse Gardening For Everyone. Ernest Chabot. Important factors are noted including correct temperatures for forcing plants, bulbs and orchids. 266 pp. \$3.00.

Tuberous-Rooted Begonias and Their Culture. George Otten, veteran grower of Tuberous Begonias, with 60 years experience. An 88-page book, with 35 excellent illustrations. This is the only book entirely devoted to Tuberous Begonias. Price \$2.00.

Bulbs For Beauty. Charles H. Mueller. 296 pages, illustrated. Experienced gardeners will gain new information about bulb culture from this book. Price \$3.50.

How to Grow Orchids. By Cecil Houdyshel. A 12-page pamphlet, no illustrations, carefully explains requirements of easily grown orchids. Price 25c.

The African Violet, Saintpaulia. Helen Van Pelt Wilson. The first and still the only book on Saintpaulias. Describes 68 varieties. Gives culture and classification. Illustrated. \$2.50.

The books are cloth bound and printed on book paper. Postage prepaid. Add 5c for insurance to \$5.00. Sales Tax 2½% for California customers.

BULBS AND ORCHIDS AS POT PLANTS

Bulbs and orchids are most desirable as pot plants. They may be grown in the living room, kitchen, a light basement room or in a small greenhouse quite as well as in a large commercial greenhouse.

The following bulbs are recommended for growing or forcing in pots. Agapanthus, Amarcrinum, Amaryllis, Clivias, Crinums, (rather large and require space), Elisena, Habranthus, Haemanthus, (especially Katherinae and next coccineus), famous Blood Lilies of South Africa, Ismenes, Nerines, Sprekalia, Tulbaghia. All the above are in Amaryllis family. Then there are the Marica, Orchids, Oxalis, all the Araceae including Zantedeschia or Calla Lilies, Amorphophallus, Arums, Sauromatum and Fancy Leaf Caladiums; also Gloxinias, Achimines, Saintpaulias, Tuberous Begonias and Billbergias.

Nearly all bulbs may be grown in pots. Crinums do well but require large pots and a wide space for the foliage. Crinum Cecil Houdyshel will often give a half dozen or more scapes of flowers scattered thruout the year. It would probably require a space of two feet on every side and an 18" tub for top size bulb.

POTTING DIRECTIONS

Bulbs bloom better in pots that are not too large. A 2½" Amaryllis will do well in a 6" or 7" pot. Many use a 5" size but I prefer to give as large a pot as will be favorable to flowering. Give larger or smaller bulbs of any sort, pots in proportion to this size, that is, 2 or 3 times the diam. of bulb. Small bulbs may be planted 2" or 3" apart in any size pot.

Most large bulbs, like Amaryllis, may have 2/3 of bulb above surface but small bulbs, especially Anemones and Ranunculus, should be covered about 1".

Use clean pots. It is advisable to boil and scrub the surface. Even new clay pots should be boiled, or soaked for two days to remove chemicals. Cover the hole at bottom with a piece of broken pot, concave side down. Above this place small pieces of broken pot and gravel. This helps to drain away excess water.

The drainage must be perfect and it is essential that the soil above this drainage be of a friable texture that permits water to pass thru freely.

The best soil is a rich sandy loam with the addition of plenty of humus. For humus one can combine rotted leaf mould and old rotted dairy manure well broken up and rubbed thru a screen of smallest gauge. For most plants the proportion can be 2/3 sandy loam, 1/3 humus.

Fertilizers. Many advise the addition of fertilizer to potting soils. We never use any except the rotted dairy manure and leaf mould and sometimes a tablespoon of bone meal. If new roots come into contact with much fertilizer they are burned. Commercial fertilizer is especially a hazard. When the plants have become well rooted and have made a good top growth, most of them will be helped by using liquid manure. Cover manure with water and allow to settle. Pour off water and dilute further until it is a very light amber, the color of weak tea. This can be used about every two weeks but don't use it on dry soil and thirsty plants.

Sun exposure. Note requirements of plants under listings. For full sun, use a south window. For half sun use an east or west window and add a thin curtain if it proves too much. For Clivias and others requiring full shade or only a little filtered sunlight, use a north window or place on a stand at a distance from window, but always give plenty of light and good ventilation, especially in gas heated rooms.

Temperature. Most bulbs root better in a cool room of 45°. There must not be too much water given while roots are starting as it may cause bulbs to rot even when cool. When a bud or foliage shows that growth has started, gradually bring the temperature to about 70° and water a little more. The best temperatures for plants vary. Some like more warmth than others. This is indicated in the special culture directions for these plants.

Probably more failures in forcing bulbs result from starting the forcing process (bringing the bulbs into a warm room with more light) before they are well rooted, than from any other cause. When bulbs are well rooted bring them into warmer temperature by easy stages, not suddenly from 45° to 75°. Gradually increase water supply.

When thru flowering, do not forget them but keep them growing as long as possible. An Amaryllis bulb will grow for 5 months or longer before going dormant.

CATALOG ARRANGEMENT

is by Plant Families, according to their relationships.

In the following lists the **genus** (plu. **genera**) is mentioned first. After it, the **species** (plu. also **species**) or horticultural variety is named. The initial of the genus is used for the second and succeeding species. Thus A. will stand for Amaryllis or Agapanthus depending on the genus last named in full. When a person's name in parentheses follows a plant's name, that person is the botanical authority for the name.

THE AMARYLLIS FAMILY—Amaryllidaceae

This Family includes the following bulbs, Agapanthus thru The Alliae.

The American Plant Life Society was founded in 1934 as The American Amaryllis Society. The interests of the Society have recently been enlarged to

include other bulbs and plants and the name changed but with no lessening in interest in Amaryllids.

The annual book, "Herbertia," is devoted to Amaryllids. It consists of about 250 pages, beautifully illustrated, on fine book paper, and is edited by Dr. Hamilton P. Traub of the U. S. Dept. of Agriculture, the greatest living authority on the Amaryllidaceae. Each member receives a copy.

The members also receive the occasional publication, "Plant Life," on other bulbs and plants. The next issue will be on *Zantedeschia*.

Those who grow Amaryllis as an interesting and intellectual hobby and who love their vivid beauty, are invited to become members of the society. The annual dues are \$2.50 per year, which you may send me.

Fourteen volumes of Herbertia have been issued. These back numbers may be bought only by members. Price of vols. 1 to 10 complete, \$35.00. Vols. 11 and 12, 1944 and 1945, \$4.50 each. Vols. 13 and 14, 1946 and 1947, \$3.50 ea. Thus 14 vols. complete cost \$51.00. The purchase of complete sets is recommended only to advanced collectors and specialists.

If you want vol. 15, apply now for membership for 1948, remitting \$2.50. After publication the price immediately becomes \$3.50. We expect vol. 15 to be ready soon. After publication, either send \$3.50 or apply for 1949 membership and vol. 16, Herbertia. Herbertia is both a scientific and a popular work. In it are published the results of basic research which lead to further progress as well as many popular articles which will bring new information to all gardeners.

Amaryllid nomenclature. Carl Linnaeus, father of modern botany, made the first, rather complete scientific arrangement of plants according to relationships in the 18th century. His information about many plants was wholly inadequate to achieve perfection. Even in my later first French edition, 1798, nearly all American epiphytic orchids were placed in one genus, Epidendrums, and under the genus Amaryllis he included certain Crinums, Zephyranthes, Sprekelias, Brunsvigias, Nerines, etc. Botany is a progressive science and later explorations and discoveries have made possible many improvements in plant classifications and have required changes in nomenclature. Horticulturists are often loath to accept the new classifications and names. But we must do so even if inconvenient at first. It is not logical to continue an error.

In order that our customers may not order a bulb they already have under an obsolete name, we give both old and new names.

Amaryllis Show. Under the auspices of the American Plant Life Society, the annual show of Amaryllid species and horticultural varieties has been resumed. Last Sept. a small show was held. Everyone liked it except the girls who made out the entry blanks. If you expect to have *Lycoris*, *Nerines*, *Haemanthus*, *Amaryllis*, *Habranthus* or any other Amaryllid likely to flower in Sept. write to the Los Angeles Co. Fair, Pomona, Calif. and ask for Premium List and entry blanks. And for goodness sake, try to fill your own entry blanks and get them filed early. It is possible that classes may be made for bulbs other than Amaryllids.

Agapanthus means Love Flower. Blooms in spring and summer. Large attractive umbels, blue or white on tall erect stiff stems. Easy to grow in south in full sun or slight shade, any good soil, and in the north in tubs or buckets, wintered in basement. Delivery any time except for the deciduous variety, *mooreanus minor*, which is delivered in winter to early spring.

A. longispathus. New species. Flowers resemble *Orientalis* but blooms more profusely and is more graceful. 50c.

A. orientalis (umbellatus) Blue Lily of the Nile. Our variety is an especially fine one with deep blue flowers on a tall stem. Many flowers are produced in spring and thru summer. 50c ea. Extra large roots, 75c.

A. orientalis, "Sky Blue". Lovely light blue. 75c ea.

A. orientalis, var. *Albidus*. Has pure white flowers. 75c ea.

Amarcrinum Howardii. (*Crinodonna Howardi* is the better name.) A cross between *Brunsvigia rosea* (*Amaryllis belladonna*) and *Crinum moorei*. Flowers are a pure pink and very attractive. As it is a winter bloomer and profuse it is a valuable bulb for a large pot. Moved in the spring, it will bloom the following winter. \$2.50.

Amaryllis Linn. This genus as constructed by Linneaus was untenable because he included plants now known to belong to other genera. The invalid name *Hippeastrum* was used by both Herbert and Baker, but now we are scientifically correct when we use the name that has always been most popular. To the word "Hippeastrum," literally translated "horse star" we can now say "horse feathers," and forget the word.

Amaryllis are the easiest, the most showy and popular of all bulbs for growing in pots. Equally desirable for southern gardens where they are hardy along the east coast to N. Car. and on the west to Vancouver. In the middle section they may be grown as far north as Ark. and Okla., but note special directions for colder sections.

How To Grow Amaryllis. In the garden, in the deep south where temperatures go only a few degrees under freezing, Amaryllis bulbs need to be covered only about an inch or two. Farther north they should be planted about an inch below frost penetration, in protected places and mulched with straw, leaves and/or brush. In Okla., a customer reports a depth of 4" with mulch is safe. One in S. E. Kansas (Ft. Scott) reported Amaryllis, covered 4" with soil and a heavy mulch above it, survived last winter and bloomed well in spring. But on the border line, do not plant expensive bulbs outside. Try our "Hardy Hybrids" and don't plant over about 6" deep to top of bulb. 4" deep is better.

In Pots. A bulb 3" or less in diam. needs a 7" pot, and larger bulbs need larger pots. It is better to pot in Nov. or Dec. Better blooms result. But one can pot them as late as March and it is better late than never. The early potted bulbs will start more easily and give better flowers, but in either case the flowers will be better and will show more fully their full quality the second year.

The best potting soil is a rich sandy loam. If not sandy use a friable loam and add sand. To this add an equal quantity of well screened and well rotted dairy manure and leaf mould. Use no fresh or partially decayed manure and no peat or sphagnum. One tablespoonful of bone meal to each pot is recommended. Mix all ingredients thoroly.

In potting the bulbs, carefully preserve any living roots, even remnants. Clean but do not scrape the base of the bulb and dust the moistened surface of base and the roots with Rootone. If there are no roots, coat base of bulb with Rootone, which will hasten their formation.

Pot the bulb two-thirds above surface and water enough to settle soil. After this keep the soil only slightly moist until growth starts, then gradually increase. When first potted set them in a cool, light room but not in sunlight. The best temperature now is not over 50°. The bulbs must have sufficient time to form a good root system under these conditions. If placed in a warm room and exposed to the sun, top growth will be made before roots, and the results are poor flowers or none.

When you are sure that roots have formed, but not before, water the plants as directed with (or without) Vit. B-1. But be sure to leave the bulbs a sufficient length of time in a cool room. They need this period of dormancy and sufficient time to make a good root system. Many fail because they try to force bulbs before they have rested and have made good roots. If you get a poor flower it may be because the bulb had no roots and had only the sustenance stored in the bulb from which to make flowers. Lack of a good root system to nourish the flower will affect the quality of the flower in every way — size, substance and even color. So, don't remove pots from the cool room too soon. Wait until they demand it by top growth. Then bring the pots by easy stages to a temperature of 50°, 60°, then about 65°. Day time temp. should never be much over 70° for best blooming.

After flowering the bulb has shrunk and a long period of growth is necessary. If good growth is made at this important stage, the bulb will become much larger and offsets may be made. Keep them growing as long as possible. When the weather is warm outside the pots may be plunged in the garden. If rim of pot is sufficiently below soil surface the roots may emerge and add range to the root system. Or better still, shift the bulb and the unbroken lump of soil to the garden. Water liberally during growth and when in good growth use manure water or mulch with manure. This is good advice for pot grown bulbs as well,

but don't give heavy feeding to a sick or starved bulb. Plants, animals and people must have enough vigor to digest and assimilate food. If they do not have this, it becomes a poison.

Keep the bulbs growing as long as they will grow. When the foliage begins to yellow, about Nov. usually, one may reduce water, and give them a rest. Store pots in a cool room as for starting.

Usually the summer's growth will have increased the size of the bulbs sufficiently to require shifting to a larger pot. The new pot should be large enough to accommodate all the roots. Do not remove or injure any of the roots and contrive to distribute them thruout the soil.

When repotted, water at once to settle soil around the roots. Thereafter repeat the procedure followed when you planted the dry bulbs. But your bulbs are now much better bulbs. They are not dried out and they have or should have many roots. If kept too wet or too warm while dormant, the roots may rot. But if you handle the bulbs carefully you may expect more, larger and better flowers the second year. With experience you may become skillful in having flowers even by Jan. 1 and others up to May 1.

I am frequently asked why the inquirer's bulbs do not flower. Perhaps they have flowered the first year after their purchase but not thereafter. Some state their bulbs become smaller each year. These results inevitably follow wrong culture. Flowers in the spring are sure to result if good growth was made in the preceding period. If you have trouble in getting good growth in pots, be sure to try shifting to the garden after flowering.

There is no such thing as the Red Fire Disease of Amaryllis. Nor is it "ketching". The red pigment or rust results from decay of the Amaryllis tissue of any part of the plant. It is the normal reaction of the Amaryllis tissue to any injury or bruise and may be caused by ones shoes, garden tools, cut worms or other insect bites, sunburn or frost, cloddy or gravelly soil, too great acidity of the soil, contact with soil sulphur or chemical fertilizer or even too much fresh manure. It often appears in a very mild form in stored bulbs as the result of decay or oxidation of the outer tunic of the bulb.

None of these things are of grave importance. Even a healthy man may sneeze.

But when a bulb is really sick the red rust is excessively produced and this symptom should not be overlooked.

Check on pot drainage, soil, and all conditions.

When a bulb is infested with narcissus fly, dig out the grubs and coat wounds with tree seal and replant. Do not treat Amaryllis wounds with sulphur. It is too acid and is therefore a poison.

Do not plant Amaryllis too close to trees or shrubs. They do not compete well with roots of such robust plants.

How to judge the quality of the flowers of Amaryllis hybrids. The perfect flower of the Leopoldi type should be 5" to 8" across. The petals should be well rounded and broad, overlapping each other, no twisting of petals, and they should form a wide open, flat flower. The texture should be smooth and firm, of good substance. The tube should be short. There should be little or no green in throat but the species Leopoldi contains considerable green. There are few hybrids that do not contain some green. Very few are perfect in every respect.

There should be no dull colors, like brick red. But colors should be bright and of every imaginable tone within the range of this genus.

Self colors are desirable to go along with stripes and other variations. But it is difficult to get other than red selfs and these are unusual. A few of our Select Strains, American Hybrids are pure red, scarlet, rose or pink selfs. But they are few and not separately labeled. Don't order self colors or any colors except as listed.

Please note. There is no quantity discount on Amaryllis except as noted with listing.

Amaryllis advena. Oxblood Lily. 5 to 8 ox-blood red flowers in an umbel, on a 10" slender scape, preceding foliage. Fall bloomer. **Culture.** Not suitable for pot culture, but so nearly hardy that in mild sections of north it will succeed. In Michigan, in the section where peaches are grown, this Amaryllis has been grown commercially. It may be planted 6" deep and mulched, in a protected situation.

Full sun exposure, heavy or medium loam soil is good but does well in lighter soils also. Price 50c ea. \$5.00 doz. Delivery late June.

A. psitticina. Species from S. Brazil. Large bulb and plant. The large flowers are green tinted with carmine lines radiating to the carmine edge of petals. The effect is of a very pretty red and green Amaryllis. But the green here is attractive. Here this species flowers in winter and is a free bloomer. When well established in a pot this species will have foliage thru the winter. A cool house or room is best. Valuable in raising hybrids when seeking winter bloomers. \$7.50 each.

A. Sibyl Houdyshel, A. ambigua, A. Johnsoni, A. Near White Hybrids. All these are sold out for the present. Please do not order them or any others not listed in this catalog.

A. Hybrids, Select Strains. These are the best American hybrids, of Leopoldi ancestry. Many Amaryllis sold are chance seedlings grown from seed collected in the field. These are likely to produce the sturdiest bulbs. From a vegetative standpoint they are the best. But for the most beautiful flowers, breeders select the best parents having the most beautiful flowers, grow them in a greenhouse and cross them by hand. Our Select Strains are produced thus.

Color Classes. These are named from the parents. When they first bloom, off colors are removed or "rogued" out. They are again rogued the second year. Nevertheless, the color classes are only approximately correct. Many off colors are missed when rogueing. There is also a wide difference in opinion as to color. One calls a flower pink. Others may call it rose. Therefore, we do not guarantee the color but we do exchange them if the customer is not satisfied. Seldom, however, is a customer willing to part with a bulb of this strain, even tho it be an off color. The following color classes are as selected and named by the originator. When you get a wrong color and do not wish to keep it, notify us at once and await instructions.

We have several lots of Select Strains that we can offer. In order to make it easier for you to order we will classify them as Offers No. 1, 2, 3, 4 etc. When you order, be sure to order like this, A. Select Strains, Offer No. 1, (or No. 2, etc.) State size, color and price.

A. Select Strains. Offer No. 1. Assorted colors. $2\frac{1}{2}''$ — $2\frac{3}{4}''$ diam. We can offer this size only in **Assorted Colors**, no named colors. Where formerly we had available and usually sold up to 4000 or more each year, we had only 1,500 last fall and only 500 are left. Therefore order early. Price 90c ea., 3 for \$2.50.

Offer No. 2. We have a good stock of these in larger sizes. These bulbs usually give 2 or 3 scapes and better flowers. We have still further reduced the prices this spring to lighten the demand for $2\frac{1}{2}''$ bulbs. **Assorted Colors**, $2\frac{3}{4}''$ — $3''$, \$1.25 ea.; $3''$ — $3\frac{1}{4}''$, \$1.75; $3\frac{1}{4}''$ — $3\frac{1}{2}''$, \$2.25 ea.

Offer No. 3. We have the same bulbs, classified by the originator as Red, Scarlet and White Background. Prices, just add 50c to the prices for assorted in offer No. 2.

Offer No. 4. We marked a few bulbs of the large sizes in the field. This is an expensive process, and we must add this cost to the bulb. They are not better bulbs but there are no off colors. We can furnish Red, Scarlet, White Background and Stripes for 25c per bulb more than in Offer No. 3. That will be 75c more (in each size) than for Assorted Colors in Offer No. 2.

Offer No. 5. Solid Colors. We have Scarlet and Red in solid colors with only slight flecking of a lighter color in the throat. $3''$ or over. Price \$5.00.

Offer No. 6. Scarlet or Red in pure self color, no fleckings or markings. $3''$ or over. \$7.50. These are excellent bulbs to breed from.

A. Houdyshel's Hardy Hybrids. We have been calling these Rutila hybrids but a long study of their characters leads to a doubt whether the species rutila is in their ancestry. But there is no doubt about their hardy, thrifty nature. Do not be misled by the use of "hardy" to describe them. They are not winter hardy in Minnesota or the coldest states. But they are the toughest, hardiest Amaryllis and this season a customer in Fort Scott, Kansas, who had taken our advice and covered the top of the bulb with 4" of soil, gave a heavy mulch of straw and manure over winter, reported that these bulbs were uninjured and bloomed beautifully this spring altho they had a low temperature of 17° below zero.

Possibly with a pile of brush above the mulch they might be wintered in the garden even farther north. There is no doubt that this strain extends the northern boundary which limits Amaryllis hardiness.

This is an extremely vigorous, rapid growing and multiplying strain and equally prolific with flowers. Most of them are similar in color, orange scarlet with white throat and green keel. An ideal strain for outside planting and landscape effects. Their bright vivid color "hits you in the eye." Altho not an exhibition type, many will like them in pots where they are easier to grow than the more aristocratic hybrids, and their bright cheerful colors in Feb. and March will be most welcome. Price, top size, nearly 3", 75c ea. \$7.50 per doz. \$50.00 per 100, prepaid.

Diener's Posthumous Hybrids. Grown from small bulbs of selected seed by Diener in the last year of his life, these should be his best. They are Equestre type, with longer and more narrow petals than the Leopoldi type. Often 5 to 8 flowers in an umbel, but to get larger flowers that approach the size claimed by the originator one must disbud, leaving not over two on a scape. This strain blooms from smaller sizes and as they multiply rapidly, do not often become extra large. **Special.** We are out of larger sizes and have decided to sell some of the smaller bulbs. Only a few of this strain becomes over 2" or 2½" in diam., and sometimes a bulb only 1" diam. will flower. We offer bulbs under 1" for 50c. 1" for \$1.00. 1½" for \$1.25.

Amaryllis Seed. Usually we do not list this seed as we need it to plant. Having planted a good lot in April, of the former years crop we needed little. We have about one fourth of this left. It will be good seed this spring. Those who have reported, say it germinated well. This was gathered in July from only Select Strains bulbs. There are likely to be a few very fine bulbs. We placed a restriction on sale of seed last fall but now we will sell, unrestricted, any amount until sold out. It usually sells for twice this. Price 100 for 50c. (no less sold). Per 1000, \$4.75.

Plant Breeding is an interesting science and art. Undertaken as a hobby, it has often resulted in fame. It will involve and develop great skill, ideals of beauty, good taste and intelligence. I suggest you start with our Select Strains. Get several bulbs and use the pollen only from those you like the best. Cross pollination is easily accomplished by placing the powdery pollen borne by the six stamens on the stigma in the center. The stigma when ready for pollen will usually be opened into three parts. When the seed pod is ripe it bursts open and may be removed and dried. Plant the seed (soon) in a fine sandy loam containing plenty of humus. Do not use peat. Cover seed about ½". Seedlings may be grown in pots in house or greenhouse where they will continue to grow all year without a dormant interval until they flower. Usually this requires 2 to 3 years. In the warm south they can be grown outside under the half shade of lath. But frost usually destroys foliage in winter and cool nights interrupt growth, slowing development.

Brunsvigia rosea (Sym. *Amaryllis belladonna*, Aitson). Familiar in Calif. and the south as *Amaryllis belladonna*, Naked Lady Lily, etc. It is hardy where minimum winter temperatures are about 10° above zero. It will be safe to plant it on the east coast to N. Car. and to Washington, D. C.; thruout the south where winters are mild; on the Pacific Coast to Vancouver. They do not succeed in pot culture.

The many flowered umbels are of the most exquisite pink and the most entrancing fragrance. Only in the rose and the Belladonna Lily does nature assemble these two qualities in one flower in such perfection.

Since Brunsvigias begin to flower in late July it is far better to order from our spring catalog. We then deliver in May or June. When ordered in the fall, one is very likely to lose the first year's bloom.

Brunsvigia rosea major. Earliest to flower and largest. Fragrant, pure pink flowers. A favorite florists item. M. 35c. L. 50c. Blooming sizes \$15.00 per 100, f.o.b. La Verne. We have a few left over bulbs, unplanted. We will offer them only in quantities mentioned and all will be shipped by express collect. Per doz. \$1.75. Per 25, \$3.50. Per 50, \$6.00. Per 100, \$10.00. These prices are below wholesale. The bulbs should have been planted 3 months ago or more but they can be saved if planted very soon.

B. rosea minor. Flowers in Sept.—Oct. Pink with lighter throat. 50c.

Clivias. Altho easy to grow and to flower by the amateur they will always be classed with the aristocrats of flowering bulbs, because the flowers easily place them there. They increase so slowly by division that the chief method must be thru the freely produced seeds. But Clivias require at least five years and usually seven, to flower from seeds. This time involves expense. They can never become very cheap.

Clivias have evergreen, strap-like foliage somewhat resembling that of Amaryllis. The flowers are produced in umbels of 10 to 25, in rich and exquisite tones of orange, in March and April. When not in flower the deep rich green foliage and later the red fruits are most ornamental.

Culture. They are usually grown in pots, even in the south, as more perfect foliage is thus possible, and when in flower one plants them in the house. We grow them in a lath house, lath spaced $\frac{1}{2}$ " apart and in garden under Avocado (evergreen) trees, directly in the soil as they are often grown in Calif. When grown thus they will make very large clumps. They must have shade with only a few flecks of sunshine, but plenty of light and air.

Clivias must never be dried off or allowed to lose their foliage. Keep them well watered after flowering, all summer and fall. Liquid fertilizer occasionally helps. When growth ceases in late fall rest them by giving them less water. But keep moist enough to prevent wilting of foliage. At this time they should have a cool room with temperatures from above 32° to not much over 50°. Pots should be 8" for a small plant up to 12" for larger. As they grow and increase, do not divide but shift to larger pots. Drainage must be perfect. Potting soil is described under "General Culture Directions." pH 7 is about right. One cannot guarantee a Clivia to flower the first year after moving tho they usually do.

The foliage of our Clivias, grown outside in the ground, will not be as perfect as that of pot grown plants. But when potted, they replace the old foliage in a few months and become specimen plants.

All Clivia prices are reduced this spring.

Clivia miniata. Wide open flowers of soft yellow orange. Hardest, \$2.75.

C. miniata hybrids. Similar to the species "miniata" in foliage, hardiness, wide open flowers, etc., but there is some variation in color and form of flower. Most of them are in light orange tones. A few are dark and a few have a white throat. Do not express your color preference for any Clivia hybrids as we cannot tell the color from the plant. Blooming size, \$3.50 ea. Smaller plants, \$1.00 and \$2.00 ea.

C. nobilis hybrids. Again we can offer a few. These have wider foliage and are less tapering at tip. The flowers are larger, with more rounded petals and many are darker red-orange in color. Blooming sizes, \$6.50 ea.

Budded Clivias. One cannot guarantee a Clivia to flower after moving unless already showing a bud. Then when moved, the plants are sure to flower. Prices of Budded Clivias, **C. miniata**, \$3.25. **C. miniata hybrid**, \$4.00. **C. nobilis hybrids**, \$8.00.

Clivia Seed, miniata or miniata hybrids for 25c ea. **Culture for seed.** Soil, half very sandy loam and half leaf mould. Have the soil quite wet and press seed down even with surface. Cover with glass and keep in full shade. They usually sprout before more water is needed. Some seeds will push out and need to be reset with root inserted in soil.

Crinums are large bulbs and plants. They are indispensable in southern gardens for landscape effect among shrubs and trees. The flowers are useful for cutting and should be grown by all florists who must grow their own flowers. Only **C. longifolia** is quite hardy. Crinums moorei, Powellii alba and Cecil Houdyshel are only a little less hardy and can be grown up to southern Ohio, Mo. and Kan., if planted deep and mulched over winter.

Grown among trees and shrubs, in combination with Daylilies, true Lilies (Liliums), etc., one has a permanent planting that need not be dug up or divided for many years. Other bulbs like colored Callas (also shade loving) that are usually dug and stored in winter may be interspersed. All the above thrive with any good soil. A heavy mulch of manure during summer is excellent for Crinums

and as a mulch you can use any kind and even fresh, rather liberally but experiment as to the amount.

In the deep south, plant Crinums shallow, only a few inches deep. In the north deep planting up to 8" or more is necessary for the hardier sorts as the bulbs must not freeze. Altho they like a little shade, nearly all do well in full sun, except Moorei, which must have shade.

Crinums succeed in pots or tubs, but they are too large for small quarters. The pots may be stored in basement over winter, placed outside in summer.

Crinum asiaticum. Very large bulbs, plants and flowers. The flowers are pure white, fragrant and resemble a spider lily. For deep south, or greenhouse, in lg. tubs. \$4.00 ea.

C. campanulatum. Belongs to the "Milk and Wine Lily" type. That is, the flowers are white with a bright rose stripe thru center. \$1.00.

C. Cecil Houdyshel. Flowers, deep rose pink. One of the best hybrids, all qualities considered. It is the same cross as C. Powellii but is much larger, more robust and instead of flowering in but limited period it is almost a perpetual bloomer. Experts consider this the best Crinum hybrid. We have to move our planting of these and offer temporary lower prices this spring. Small bulbs, \$1.00. Blooming size, \$1.75. Very large bulbs, \$2.50.

C. Ellen Bousquet. Most outstanding. It is most surprising to see a Crinum with such dark, glowing wine red flowers. Very vigorous and easy. Jumbo \$1.50. Large \$1.00. Medium 60c ea.

C. erubescens. "Milk and Wine" type. The center stripe is red-purple. 50c ea. Jumbo \$1.00 postpaid. Extra large jumbos, 75c, 6 for \$3.75 by express f.o.b.

C. H. J. Elwes. Pink flowers of unusual beauty. \$4.00.

C. kirkii. One of the most desirable of "Milk and Wine" type. White flowers with red center stripe. The large umbels have many flowers open at one time. 75c ea.

C. longifolia alba. (Syn. Capense alba.) White lily-shaped flowers. This is the hardiest species, surviving the winters with protection if planted deep, as far north as Ohio. Better than "Rosea." 50c. Botanists now call this C. bulbispermum.

C. Louis Bousquet. Very free flowering thru an unusually long season. Pink flowers on a very tall, erect scape. 50c.

C. moorei. Large pink, bell-shaped flowers in the fall, freely produced. The long neck of the bulb surmounted by rotated leaves gives the plant great decorative value. Requires shade. Nearly as hardy as longifolia. \$1.00 ea.

C. powelli alba. Extra fine pure white. One of the most valuable and beautiful Crinums. 50c ea. Jumbo \$1.00 ea.

C. Virginia Lee Seedlings. We have not had enough stock of Virginia Lee or of its seedling Gordon Wayne to list for several years. This lot comprises seedlings as far removed as the fourth generation but are all similar. They range in color from pure white to heavy pink markings. All are as good and some are better than Virginia Lee. While much like Virginia Lee they must not be given this name. The buyer is entitled to name them if desired. They must be grown in the shade. Price \$2.00 ea. Small bulbs 50c and \$1.00 ea.

Elisena longipetala. Very rare and lovely Peruvian amaryllid. It is related to the Ismene but the pure white flowers are far more delicate and graceful. Culture like Ismene. It can be forced in pots or grown in the garden in summer. Bulbs stored over winter like Glads. It is hardy in the middle south. This fine, rare bulb should be in every collection of unusual bulbs and we offer at the still further reduced price of \$1.50 and \$2.00 ea. this spring.

Habranthus. Formerly considered as a subgenus of Hippeastrum. When this genus was reorganized, most of the species were placed in Amaryllis and this subgenus became the genus Habranthus. Usually they have a one flowered scape. The culture is about the same as for Amaryllis advena as they are usually fall bloomers and winter growers.

Habranthus brachyandrus. The long tubular flower is very striking in color, lavender pink with a deep purple throat and is quite large. They begin to flower in late summer and continue into the fall. Hence should be ordered early. 75c.

H. rubustus. Baker says the flower is rose red. It appears lavender pink to me. 25c ea. \$2.50 per doz.

Haemanthus. This south African genus is very rare in cultivation. Very few have ever seen one. They are hardy only in an almost frost-free climate like So. Calif. or Florida. In their habitat, the following grow in cool, moist forest glades where there is little sun but plenty of light and where breezes keep the air in motion. These are the famous and rare Blood Lilies of South Africa.

Culture They should be grown in pots except in climates like Florida and So. Calif. The soil should be equal parts of loam, coarse sand and peat or leaf mould made thoroly fine. Drainage should be perfect. A tablespoonful of bone meal to each pot is useful. *H. Katherinae* should be planted about 3" deep; *puniceus*, *coccineus* and *carneus* covered about 1" to 2". The bulb of *albiflos* may extend about half above soil surface. An abundance of water at all times when growing is required but rather on dry side when dormant. Additional culture information is given with species. All are natives of South Africa. All are easy to propogate from the freely produced seed. Grow them as advised for Clivia seed.

Haemanthus Katherinae. The bright red flowers fill a large rounded umbel often 10" or more in diameter. I have counted nearly 125 in an umbel. The broad banana-like foliage droops gracefully into an umbrella form. Scarlet seeds follow the flowers. A plant in flower is an unforgettable sight of tropic beauty. The entire plant is of quite large proportions, the foliage and flower umbel reaching a height of 30" to 36". Introduced from Natal in 1877, they are yet very rare. Give them a 14" to 16" pot or tub.

Katherinae is almost evergreen but usually tops either die or decline in January. About that time, the neck splits due to pressure of new growth. We can usually deliver from Jan. until late March but early ordering is advisable. We usually delay shipment by mail to north when there is danger of freezing. Express is always safe. *Katherinae* should never be entirely dried off but less water is needed in winter as it is a summer grower. Former prices were \$10.00 and \$12.50. Special this spring for \$6.50 in a good flowering size and \$8.50 for extra large bulbs.

H. albiflos. Two or more rather stiff erect evergreen leaves. The small white flowers, 100 or more, are in a dense umbel. A rare and unusual plant. It is evergreen and must never be dried off. But most growth is made in summer and more water is needed then. Flowers here in late fall. Leaves burn badly in sun. \$3.00.

H. coccineus. This is the true Blood Lily altho all *Haemanthus* are referred to as Blood Lilies even tho one has white and another flesh pink flowers. This very rare Amaryllid usually has only two semi-erect leaves. They grow all winter after which they should be entirely dry until about Aug. Then watered only a little at first. The flower scape appears, preceding foliage. This scape furnishes part of the floral display, being marked by contrasting red spots on a bright background. The 4" umbel consists of very numerous small, densely placed blood red flowers. These are followed by the fruits which turn red upon ripening. Each fruit will contain one or more large seeds. In the south plant the bulbs with top even with soil surface. Half shade. Easy in pots where half of bulb may be above soil. Stock very limited. Order early and reserve your bulb. \$3.00 ea. Jumbo size that should give 2 or 3 flower scapes and a lot of seed, \$4.00.

H. carneus. The two leaves are prostrate. The flowers are larger and less numerous than in *H. coccineus* and are flesh colored and not striking in appearance. The growth habits are similar. It is valuable mostly to collectors of unusual plants and for crossing with *H. Katherinae*, *H. coccineus* or others to get new colors. Moisture does not harm this species when dormant as in case of *H. coccineus*. Delivery late spring to about Aug. 1. Stock limited as on all *Haemanthus* and it is best to order in advance. Price \$3.50.

H. puniceus. Evergreen plant with very attractive foliage. The leaves are very vivid green, wavy edged with spotted petioles. Scarlet flowers in spring in umbel similar but smaller than *H. coccineus* and followed by red fruits. This is an exceptionally nice, easy to grow and unusual house plant. \$4.00.

Hemerocallis. Daylily. The flowers range in color from dark bronzy red, thru pastel tones of pink to orange and yellow. They are borne on a branching scape well above the foliage.

The Greek name, meaning "beautiful for a day," refers to an individual

flower. But these are so freely produced, thru a long period, that "beautiful every day" would be more apt, as a collection of several sorts show masses of flowers thruout the spring, summer and fall and here we often have some winter flowers. The modern sobriquet of "The Perennial Supreme" is well deserved.

Culture. While their beauty is their greatest recommendation, their easy culture and hardiness add to their desirability. I have known abandoned plants here, where we have arid, hot summers, to persist for years. They grow well in full sun. Slight shade is better. If given constant moisture about their roots, preserving this and coolness of the earth with a good mulch, the plants are ideally situated and respond with generosity. They are hardy even in severe winters in the north. They are fibrous rooted, not bulbs, and must be planted at once when received. Altho they can be moved any time, it is better to ship from late fall to early spring.

They are an almost perfect border or landscape plant, never have to be dug and replanted. All that you must do for them is keep the weeds down and water. A heavy leafy mulch helps every way.

In Daylilies, the sepals are colored and petal-like and are an essential part of the floral display.

Hemerocallis Araby. A lovely pastel color, with the effect of bronze on gold dust. 30". \$2.00

H. Bagdad. Coppery red over orange veins. Mid-zone of madder brown. Very striking large flowers. 3 ft. June-July. 30c.

H. Calypso. Large, fragrant lemon yellow flowers. Opens in evening. 42". June-August. 30c ea.

H. Cecil Houdyshel. A Dr. Traub origination. A deep crimson with an old copper shade that makes it outstanding in our garden. Slight shade gives better color to flowers. 3 ft. June-July. \$2.50 ea.

H. Chengtu. Brilliant coppery orange-red with carmine mid-zone. 3 ft. July-Sept. 50c.

H. Cinnabar. Cinnamon sprinkled over orange, gold-glistening. 30". July-Aug. 40c.

H. Crown Prince. Color like Mikado. 30". June-Aug. 25c ea. Per doz. \$2.25.

H. Dauntless. Cadmium yellow. Fulvous red blended in mid-zone. Pastel effect. 30". June-Aug. 75c.

H. Florham. Still popular old hybrid. Large, golden yellow. May-July. 50c

H. Florida. Pastel shades. Light chrome yellow with rose blush. Darker mid-zone. \$2.50.

H. Fragrance. A fine deep yellow. Fragrant. \$2.00 ea.

H. Kwanso. The Double Orange Daylily. 25c ea. 3 for 50c.

H. Linda. Petals, ruffled golden yellow, flecked with cinnamon, and a rose zone. Sepals, pure yellow. Very lovely. 50c ea.

H. Margaret Perry. Brilliant orange-scarlet. 4 ft. July-Aug. 35c.

H. Mikado. Orange with mahogany-red zone. A favorite. 3 ft. May-July. 35c.

H. Nubiana. Dark chocolate-red with yellow stripe in petals. One of the darkest varieties. 2 ft. 60c.

H. Patricia. Pale yellow. Large fragrant flowers. 30". July-Aug. 50c.

H. Radiant. Rich orange. 42". June-July. 50c.

H. Rajah. Deep English red with darker red veins. Garnet red eye-zone. 40". July-Aug. 75c.

H. Rosita. Near carmine-crimson with coppery red tone. 36". Part shade preferred. \$1.00.

H. Rosalind. Superior clon of *H. fulva rosea*, famous pink Daylily. A very delightful pastel shade of rosy pink. \$3.50.

H. Serenade. Rose-fulvous markings on apricot cream. Faintly overcast darker. 4 ft. June-July. 75c.

H. Sibyl. Dark purple-red petals, lighter sepals. \$3.00.

H. Soudan. Lemon yellow. Broad wavy petals and sepals. 3 ft. June-July. 50c.

H. Spitfire. Seems never to quit blooming in spring, summer and fall. Fiery red with yellow midrib, yellow throat. Small flowers but in great profusion. 2½ ft. \$1.50.

H. Vesta. Deep orange with glistening gold sheen. 30". May-July. 35c.

H. Vulcan. Dark maroon-red. 30". July-Aug. \$2.00.

H. Wau Bun. Large apricot flowers, sprinkled fulvous red. The twisted and curved petals add to its beauty. 75c.

Ismene are no longer placed in the genus *Hymenocallis* but are given a genus of their own by botanists, a more logical classification.

Their large, deliciously fragrant white flowers are most desirable for cutting and are seen often in florists shops. This year we offer the new fine hybrids at new reduced prices as we have sufficient stock to be able to do this. I understand that even the Holland originator lost some of these during the war. I do not believe any other source could supply Sulphur Queen, the new light yellow at 75c ea. We paid \$5.00 ea., only a few years ago.

Culture. In the south where the ground does not freeze to a depth greater than an inch or two, or where this can be prevented by mulching they are quite winter hardy. The bulbs on the border line can be planted 5" or 6" deep. In the north they may be planted outside as early as the ground can be worked and dug and stored in late fall like *Gladiolus*. Or they can be potted about Mar. 1, treated as for *Amaryllis* and after flowering shifted to the outside garden.

Ismenes must be stored in a warm place, 55° to 70°. If stored in a cold place the bulbs will not flower and very often they will rot. Strangely, in the ground this susceptibility to cold is not apparent. But any bulb plant or tree, if well rooted, is less susceptible to frost injury. That may be the reason why low temperatures do more damage to Calif. Citrus fruits in dry winters than when the rainfall has been plentiful and root action is therefore more active. Winter irrigation may offer more frost protection to fruits than is usually believed.

In mild climates, plant the bulbs early, 4" deep and where you will want them to stay for several years. They deserve a good rich deep soil and if not sandy it should be made very mellow with much leaf mold or compost.

Ismene calathina. Peruvian Daffodil. Large white, fragrant flowers attractively tinted green. The stamens are joined by a membrane to form a cup, like a daffodil. 35c. Extra large, 50c ea.

I. festalis. An Ismene--Elisena hybrid, Pure White, very graceful, fragrant flowers. The long narrow petals give a great refinement to the flowers. No white Amaryllid is quite as elegant (unless *Eucharis*) as this hybrid, which anyone can grow while only a very few can grow *Eucharis*. Price \$1.75 ea. A few super-jumbo bulbs for \$2.25.

I. Olympia. The largest Ismene. It is really a giant. As the color is tinted sulphur yellow we believe it may be a hybrid of *I. calathina* and *I. Sulphur Queen*. \$2.25 ea.

I. Sulphur Queen. Hybrid of *I. calathina* and *I. amancaes*. This rare light yellow Ismene should be in every bulb collection at this low price, 75c ea. \$7.50 per doz.

I. Macleana. This is the midget of the genus. The flowers are tiny, perfectly formed Ismenes in startling contrast to Olympia. The stems are about as long as others so they are useful in arrangements. 25c. \$2.00 per doz.

Collection of 5 var. of Ismenes, \$5.00. This collection will excite the interest of every visitor to your garden when in bloom.

Lycoris are natives of Japan and China. They are among our very best bulbs for the south and two at least, *L. squamigera* and *L. purpurea* are quite hardy in the north. This is because the bulbs remain dormant until very late winter or early spring when the foliage appears, makes rapid growth and dies back by early summer. Most other species are winter growers and that eliminates them for northern gardens. Cover the bulbs by about 4" of soil in full sun exposure. Leaf mould or peat added to soil is a help. Lycoris are not recommended for pot culture. Most of them are hardy to Washington, D. C.

Lycoris aurea. Golden Spider Lily. This is the famous Hurricane Lily of St. Augustine, Fla. It is one of nature's most beautiful flowers, but rare and expensive. They must be ordered before Sept. 15 as they bloom very early. Hardy only in deep south. \$2.50 ea.

L. purpurea. Close to *squamigera*. But not a variety of it. The purplish flowers have vivid blue markings. Perfectly hardy in north. Rare. \$3.00.

L. radiata. Red Spider Lily. Coral red flowers in a several flowered umbel in Sept. Flowers are followed by the foliage. Flowers have narrow undulate petals and long stamens which give the "spidery" appearance. This is a common flower in the south and one of our most beautiful. Hardy along coast to North Carolina and on Pacific Coast to Vancouver. In pots it flowers only the first year. 35c ea. Largest bulbs, 50c ea.

L. squamigera. Amaryllis Halli. The hardy Amaryllis that resembles *Brunsvigia rosea* (*Amaryllis belladonna*). \$1.00 ea.

Nerine. This genus is seldom seen in America, altho it is one of the most beautiful and varied of the Amaryllids. They bloom in succession from Aug. 1 thru January. They are hardy only in the south where temperatures seldom go under 26°. But they are one of the finest pot bulbs. **Culture.** Pot or plant in mildly acid to neutral soil. Sandy soils are more likely to be acid and drainage is better. Use peat or leaf mould to bring soil to pH 6.5 or 7. Alkaline soil is the most frequent cause of failure. Pot bulbs at once with bulb well covered and 2" to 4" deep in gardens. Full sun. When foliage yellows withhold water.

Nerine Bowdenii. 10 or more flowers in an umbel 9" wide on a 15" scape. The finest of all and of easy culture. Delivery Jan. to July, sometimes later. \$1.00 and \$1.50 ea.

N. massonorum. Earliest, often mid-July. Foliage like *N. filifolia*. Flowers resemble it but small, on a shorter scape. Very long spathe. Delivery any time. 35c ea.

N. rosea-crispa. Hybrid of *Filifolia* but larger in all parts. Can be kept evergreen or dried off. Summer delivery. 60c ea.

Sprekelia formosissima superba. The Orchid Amaryllis. Deep crimson flowers in orchid-like form. This variety is much larger than the common type, better color and more flowers. Unlike the type, this var. "superba" is evergreen. A desirable bulb for pots. **Culture** like Amaryllis. Largest, 75c ea. Large, 50c ea., postpaid.

Tulbaghia violacea. Small cousin to *Agapanthus*. Mauve flowers produced thruout the year, a true ever-bloomer. Foliage has garlic odor if bruised. An acquisition for pot culture. 25c ea. 5 for \$1.00. \$2.00 per doz.

Zephyranthes. Fairy lilies. The smallest Amaryllid, 6"-12" tall. Fine in beds or borders. Hardy in middle south. In north dig and store. They may be grown in pots. Give acid soil, sandy loam with leaf mould or peat. Full sun or slight shade.

Zephyranthes grandiflora. The largest Zephyranthes and the best pink. It is very easy to grow. In the south, its habit of flowering every time it rains in summer gives it the name of Pink Rain Lily. Small bulbs 15c ea. Large 25c.

The Alliae, or onions are now included in the Amaryllis Family. The following Alliums are useful as foods as well as ornamental. Culture simple and easy.

Allium schoenoprasum. True Chives. Small clumps, 10c, 3 for 25c.

A. tuberosum. Japanese Garlic. Deliciously flavored leaves. Evergreen and probably not hardy in north. 25c.

IRIS FAMILY—Iridaceae

The Iris is the type plant of this family which also includes *Gladiolus*, *Maria*, *Tigridia* and many others that are listed in our Fall Catalogs.

Tall Bearded Iris. The old fashioned name was *Iris Germanica*, or simply Flags. We thought them lovely, but modern Iris, with their infinite colors, markings and blendings, are scarcely recognizable as their descendants.

We prefer to deliver Iris in June and July as soon as we can after flowering as that is the best time. They can be moved any time of year but they do better if moved then. However we will send, on your responsibility, at any time.

Culture is simple. Plant with roots spread out and rhizomes covered not over 1". They do well in sandy loam but prefer heavy soil. It should be mildly alkaline or at least neutral. In acid soils the results range from unsatisfactory

to complete failure. Ashes are often used in some sections to neutralize acid soils, with much benefit to Iris but do not use them in Calif. or where soils are usually alkaline. Do not use manure or other fertilizers. Good garden soil enriched in previous years is best.

Iris bloom better the following spring if allowed to become quite dry and to bake in late fall for a couple of months. When clumps become crowded there are likely to be very few and poor flowers.

"The Iris 400," price list of the more recent and more expensive Iris, was promised to you six months ago. This was almost completely written but not quite finished or printed. Our volume of fall business taxed our capacity without Iris orders. But we expect to print it and send it out about April or May. It is free, but we prefer to add only intending buyers to our special Iris mailing list.

Airy Dream. 42". Ruffled orchid pink. 40c ea.

Alta California. 48". S. deep yellow, perfect in form. 25c.

Arcadia Blue. Pale blue. Blooms profusely early and late spring and in fall. 25c.

Asia. 48". S. lavender; F. violet-purple blend. Late. 35c.

Attitash. Variegata. S. yellow, citrine and violet blend. F. violet blend. 20c.

Blue Beard. Better, deeper blue than parent, Crimson King. Off season bloomer. 35c.

Blue and Gold. Deep gold beard. 20c.

Blue Velvet. 46". Intense, deep violet blue. 25c.

Boadicea. Yellow and pink blend, flushed sky blue in center of F. 25c.

Buechley Giant. Perfectly formed, massive blue flowers; very tall. 25c.

California Blue. 60". Rich blue violet with glowing orange beard. 25c.

Canyon Mists. 40". Pink mauve self colored. Beautiful. 20c.

Cecil Houdyshel. Tall Plicata. White, feathered lavender. 20c.

Cheerio. S. lustrous tan. F. brilliant velvety red. 40c.

China Maid. Blend of pink, gold bronze and rosy lilac. \$1.00.

Cinnabar. Rich velvety deep red violet. 20c.

Claridad. 30". Best, true-blue iris. 20c.

Coronation. 36". Fine, large, deep golden yellow. 20c.

Cucamonga. Tall velvety blue-violet. 25c.

Dauntless. Fine tall red self. 35c.

Delight. Tall, pink and white plicata. 15c.

Depute Nombot The perfect Iris. S. copper. Dykes medal. 25c.

Desirable. Very striking white and purple. 25c.

Dolly Madison. 35". Large flowers blended mauve and yellow. 15c.

Don Quixote. 42". Large, blended violet and brown. 15c.

Druid. 36". Red maroon and brown. 20c.

Duke of Bedford. Deep red violet. 15c.

El Capitan. 40". Manganese violet. Largest and finest. 20c.

Eleanor Roosevelt. Dark purple. Free fall bloomer. 15c.

Franceville. 54". S. tawn, tinted lilac; F. red purple edged heliotrope. 25c.

Gaviota. Fine cream white, edged yellow. 15c.

Golden Cataract. Deep golden yellow. Most profuse bloomer of all. 35c.

Happy Days. Our largest, tallest yellow. Most desirable. 40c.

Indian Chief. Huge, brilliant red tone, perfect form, free flowering. 25c.

King Juba. Tall. Golden standards and contrasting velvety red falls. 45c.

King Midas. Bicolor. Blended golden buff and garnet brown. 25c.

Lentz Schnee. White, tinted lavender. 15c.

Los Angeles. Tall, large plicata. Snow white, edged blue. 25c.

Loudoun. 30". Yellow lined and dotted with chestnut. 20c.

Louis Bel. Pansy violet and violet purple. 25c.

Mabel Taft. Giant blue bicolor. 25c.

Mary Barnett. 42". One of the best light blues. 20c.

Mary Geddes. Blended soft pink and Pomeranian red. Dykes Medal. 35c.

Mary Gibson. 42" Early. Bronze, blended yellow. 25c.

Mary Señni. S. lilac, flushed red brown. F. violet and lilac margin. 20c.

Mauna Loa. Tall, conspicuous. Reddish flowers. 30c.

Melchoir. 36". S. bronze velvet, F. velvety crimson violet. 6" flowers. 20c.
Messaline. 38". Very large. Red brown and red violet blend. 20c.
Mildred Presby. 20". S. creamy white; F. velvety, pansy violet. 20c.
Mirasol. Bright deep chrome yellow. Fine form. 20c.
Mme. Cheri. Large pink and violet blend. 20c.
Mme. Durand. Tan and mauve blend. 25c.
Moneta. Tall, red purple and violet bicolor. Off season bloomer. 30c.
Ningal. Blend of pastel shades in rosy buff. Yellow in throat. 35c.
Numa Roumestan. 36". Intensely red. 20c.
Pacific. 36". Gigantic deep blue. A magnificent early iris. 25c.
Pale Moonlight. Very pale blue. 35c.
Persia. Bright blue, blended with smoky blue, like a persian rug. Fragrant. 35c.
Picador. Variegata. Gold and red brown. 25c.
Pres. Pilkington. 40". S. buff over old gold. F. violet edged brown. 25c.
Purissima. 42". The most perfect white. Gigantic flowers. 25c.
Querida. 44". Blended pastel tints, mauve to white. Fragrant. 15c.
Red Dominion. Deep red. One of reddest. 45c.
Red Embers. Very striking bicolor. S. pink. F. velvety crimson. 25c.
Rialgar. 22" Deep buttercup yellow and bronze. Very showy. 20c.
Rosultra. 40". Early, bright rose. Fine garden effect. 20c.
Sacramento. A giant plicata like San Francisco but edged red purple. 25c.
Sandakan. Tan and purple bicolor. 20c.
San Francisco. 44". Finest, largest plicata. Lavender blue and white. Dykes Medal. 25c.
San Gabriel. 60". Pink lavender. Extra fine. Too early for east. 20c.
San Luis Rey. 38". Large red purple. 15c.
Santa Barbara. 40". Finest lavender blue. Very large, perfect form. 20c.
Sequoiah. 36". Reddish color. F. margined lighter. 20c.
Shasta. 40". Gigantic snow white. Perfect form. Early. 25c.
Sierra Blue. 50". Clear soft blue. Enormous flowers on well branched stems.
Perfection. Dykes Medal winner. 40c.
Souv. de Mme. Gaudichau. 36". Dark velvety blue purple. 20c.
Susan Bliss. 40". Magnificent pink toned iris. 25c.
Tenaya. Dark red-purple. Very outstanding. 20c.
Theme. New blend of unusual colors. S. bronze gray flushed lavender. F. bronze-tan and petunia-violet. Fragrant. 50c.
Thos. R. Bacon. Ivory yellow blended gray, violet in center of falls. 25c.
Ute Chief. S. blue violet; F. royal purple. Red toned. 20c.
Valencia. 24". Russet color of a valencia orange. Ruffled. 30c.
Valor. Blackish blue-violet bicolor. Large, rich, fine. 20c.
Wonder Child. Very large, deep pansy purple. Magnificent, profuse bloomer. 35c.
Yves Lassilly. Very large white, suffused sky blue. 20c.
Yvonne Pellitier. Pallid blue-violet blending to light violet. 20c.
Collections are usually expected. Our prices are already so much lower than most prices that we cannot make the large discounts that are sometimes made. Since it is likely that a few surpluses may be apparent at digging time we will offer.
Collection. Ten varieties, our selection, each rhizome labelled and they will not all be 15c sorts. Price \$1.25.

Gladiolus

How to Grow Gladiolus. Glads planted Nov. 15 to Mar. 1 in Southern California and thruout the south (a little later in Northern California and early as possible in spring in the east) are reasonably sure to escape the attack of thrips. Our Glad bulbs are especially grown for this purpose, matured early and dug in August. But if you plant recently dug bulbs you will gain nothing; they will continue their rest of three months before starting.

Thrips are very small insects that suck the juices from the plant. They cause the flowers to wither or appear burned, and appear only after weather

becomes warm. To avoid the damage thrips do, four measures are effective. Plant early. Plant clean, treated bulbs. Keep them reasonably moist and well cultivated, with no weeds.

The total elimination of thrips appears impossible. A few are bound to appear as the weather becomes warm.

We therefore begin to dust with D.D.T. when plants are about 8" tall. Any hand duster will do. We use a powder containing 5% D.D.T., 45% Sulphur and 50% inert ingredients. Dust in early morning when the plants are moist with dew. That will cause the powder to stick and remain effective for a week or two. Four to six dustings before flowering will control thrips tho in a field where various sizes have been planted and where flowering lasts for several weeks we consider it advisable to dust again once or more, the next morning after flowers are cut. We have not seen flowers or buds damaged by D.D.T. This powder can be had most anywhere under one of several trade names.

Treating Bulbs. We have recommended various dips and treatments for bulbs but have rejected all when we later found that some injuries resulted to the bulbs. Now we dust our bulbs with the same D.D.T. powder. It keeps aphids and mealy bugs away and kills the thrips.

Naphthalene flakes sprinkled in the bulb containers which are then covered and allowed to remain about three weeks, will usually kill all thrips. But too long an exposure results in a little damage to the bulbs.

The Lysol treatment kills thrips and their eggs. It also is useful in controlling the various bacterial and fungus diseases that attack the bulbs. Mix 4 teaspoonfuls Lysol to each gallon of water. Soak the bulbs in this not over 5 hours. Do this just before planting and plant in moist soil. Unfavorable results have been reported from soaking too long or by planting in a dry soil and thus prolonging the action of the Lysol. Some growers do not recommend this treatment.

The bulbs we sell you have been treated with D.D.T. Plant large bulbs 4" or 5" deep; small 3"; bulblets 2". Twice their diameter apart. One can plant two rows, staggered in a 4" wide furrow or closer in a single row. Rows about 20" apart. Alkaline soils produce poor Glads. Soil should be neutral to mildly acid. Leaf mould or peat added is useful. Domestic peat is often harmful because alkaline. Use no fresh manure, but well rotted manure is good. Top mulch of leaf mould or imported peat is good.

Keep Glads growing with plenty of water and best culture for about two months after flowering. It is best to dig bulbs in the south, and necessary in the north.

Sizes and Prices. L means "large," size 1 and 2, 1 $\frac{1}{4}$ "-1 $\frac{1}{2}$ " (or more) in diameter. M. is "medium" and includes No. 3 and 4 sizes, $\frac{3}{4}$ " to 1 $\frac{1}{4}$ " diam. S. means "small," under $\frac{3}{4}$ " diam. Large and medium bulbs give good long spikes. Small bulbs usually bloom in most varieties and when planted early, given good culture and plenty of water they usually make fairly long spikes. Early planted bulblets often flower. Large bulbs bloom earlier and throw more and longer spikes. **Prices** are for one bulb as elsewhere in this catalog. A dozen, all of one sort, costs ten times the price of one unless otherwise stated. Six are sold at dozen rate. Don't forget **Sales Tax** in California.

Substitution. If you order early there is likely to be no substitution, but when out of a variety we send another as nearly like it as possible and of equal or greater value. If you do not approve this, request no substitution.

We are offering many of the newer and better varieties that have been increased to a quantity where they can be sold at medium prices. A few of the older ones, still desirable, are retained.

Please Note. The following descriptions are brief, to save space. The prices are low, to save you money. But every one ranks tops in its color class.

April. Beautiful pastel tone of Apricot. Tall, vigorous, early. L. \$1.50 ea.

Big Top. Light pink with carmine feather. 6 ft. tall. The gorgeous, immense flowers and height give great distinction. L. 20c ea.

Blue Beauty. The best of all blue glads, we think. Large and tall. L. 7c ea. M. 5c.

Burma. New ruffled, deep rose red. Sensational new glad. L. 25c.

Butterscotch. Tall orange yellow. This is a new color break and a delightful one. Similar to Talisman rose colors. M. \$1.00 ea.

Capeheart. Light salmon rose. Large fls., 8 open.. Early commercial cut flower and exhibition. L. 8c ea. 75c doz.

Elizabeth The Queen. Gorgeous, immense, ruffled lavender flowers. Best. 20c ea., 3 for 50c. \$1.75 doz.

Ethel Cave Cole. Tall, early, large flowers, many open. This exquisite pink is probably the world's best and in greatest demand by florists. L. 8c ea. 75c doz. \$5.00 per 100. M. 6c ea. S. 4c. The small bulbs will flower well if planted early.

Margaret Beaton. Large white, with scarlet throat blotch. Popular as a florist's flower. L. 6c. Most catalogs list this at 50% higher price. It grows so well and increases so fast that we are reducing our stock by retail sales rather than wholesale.

Pacifica. Tall, early white, popular for cutting. L. 8c.

Red Charm. Finest new red. Tall. Many flowers open. L. 25c.

Red Unknown. Fine vivid color, tall spikes and very early. The label was lost but it is so good and sells so well as a cut flower that we continue to propagate it. Because unnamed we price it low. L. 8c ea. 75c doz.

Rosa Van Lima. Tall rose pink. Very beautiful. L. 10c ea.

The Orchid. The small lacinated flowers resemble orchids in color and form and florets make a nice corsage. Small blooming size 75c doz. An error was made in our fall price.

Wanda. Fine cream sport of Picardy. L. 10c. M. 8c. S. 5c.

Mixed Varieties. Not a balanced mixture but a mixture of excellent varieties. 5c ea. 50c doz. \$3.00 per 100. Small to medium, blooming size, \$1.50 per 100.

Please remember that the rate per dozen is ten times the price of one bulb.

Bulblets. If bulblets are peeled carefully without bruising, planted early, kept moist until they come up and given good culture thereafter which includes plenty of irrigation, many will flower the first year. A large proportion will make large or medium sized high crowned bulbs. They do quite well without peeling. The following list are not common, ordinary varieties that can be sold for little-or-nothing per pint. We would not sell them if we had land enough to plant all as these are top-notch varieties.

Price. Assorted varieties, per $\frac{1}{2}$ pint, \$1.00.

Other Bulbs of Iris Family

Marica gracilis. Walking Iris or Apostle Plant. The fugitive 2" flowers, white and blue with yellow and brown marking in center, are lovely. The flowers are followed by a small plant at end of scape. These become heavy and bend over to ground and take root, thus walking away from mother plant. **Culture.** Give nearly full shade, plenty of water, never drying out. Tender tropical but grown in pots in north. 50c ea.

Tigridia pavonia hybrids. Tiger Flower or Shell Flower. Large, very showy flowers of yellow, orange to rose and red. Plant as soon as weather is settled and frost danger is past, in good soil, 3" deep, 5" apart. We give a little shade as our sun is very hot. Along coast or in the north it may not be necessary. Water well when rains fail. They can be grown in a greenhouse. In the north, dig like Glads and store dry. We offer this spring the Califlora Hybrids, the best, all Tigridia colors, assorted. $\frac{3}{4}$ " diam. 15c ea. 3 for 35c. \$1.25 doz.

LILY FAMILY—Liliaceae

The type species is *Lilium*, or true Lily. Many call Crinums, Callas, Cannas, or any bulbs "Lilies," but this is an error.

Lilium regale. Large fragrant, white flowers, tinted pink with cream throat. This is one of the hardiest and is easy to grow. It increases in size and number every year and becomes permanently established in the garden. It belongs in the perennial border along with Daylilies, Crinums, Shrubs, etc. They prefer mildly acid soil and the addition of leaf mould and sand to your soil will give improved results. Mulch the ground or plant among shrubs or other plants that shade the

soil surface but allow the plant to rise into the sunlight. Keep their feet cool and their heads warm.

Lilium regale, improved. These are the result of crossing with whiter species. For a white garden lily they are the most satisfactory. They can also be forced in the greenhouse but must be first left in a cool place until pots are full of roots before brought to a warm house. It is too late to force any lilies now in time for Easter and Regale blooms late anyway. Prices, 30c and 40c ea. Extra large, 12"-15" circumference, 75c ea. Order before Mar. 1, only.

Gloriosa Climbing Lily. The flowers resemble true lilies but surpass most of them in their gorgeous beauty and high coloring. They propagate by tubers instead of bulbs. The stem is branching and heavy and must be supported.

Culture. They must have sandy soil with leaf mould and peat added, acid (about pH 6.5), full sun or slight shade, plenty of water, perfect drainage. We usually plant before March 1, but sometimes as late as May. They need a long season. Plant 4" deep. Horizontal position. In the north they may be started early in pots and shifted. Do not break earth ball when shifting.

Gloriosa rothschildiana. It deserves the name **Glory Lily**. Very vivid colors, red with yellow markings, turning later to deep red and then deep rose. 4 to 6 ft. tall. \$1.00 ea.

OXALIS FAMILY—Oxalidaceae

Because of their masses of bright, colorful flowers, the ease of their culture and the insignificance of their cost, Oxalis are favorite with many gardeners. They are so varied in form that they appeal to the collector also. The winter growers are most cheerful pot plants and the summer growers make bright, interesting borders or beds of low plants. Here they will make a solid bed of color, enduring for many weeks.

Besides the division into winter and summer growers we can also divide into fibrous rooted, tuberous rooted and bulbous.

Oxalis crassipes. Tuberous rooted. Flowers bright rose. Evergreen and ever-blooming. Can be moved any time but usually require as long to make a good plant as the bulbous type. Do not store dry but plant at once. Tubers 20c, 3 for 50c.

O. Deppei alba. This and the following are summer growers. Usually 4 green leaflets. Flowers are small. 3 for 10c. 35c doz. in assorted sizes.

O. lasiandra. The prettiest summer Oxalis. 5 to 10 leaflets. Bright rosy crimson flowers. 2 for 15c. 75c doz.

O. tetraphylla. 4 large leaflets, crossed by purple band. Flowers rosy. 2 for 15c. 75c. doz.

THE CALLA LILY FAMILY—Araceae

This family contains the so-called Calla Lilies or Zantedeschias, the true Calla palustris, Fancy Leaf Caladiums, (Caladiums), Sauramatum, Amorphophallus and many others.

Culture. Zantedeschias, Pink, Yellow and Spotted Leaf Callas become dormant in late fall and should not be potted before Dec. 15. If potted on that date very little water must be given or they may rot. If not potted until Feb. 15 they have had a longer rest and start more easily. For potting read our "Potting Directions" in front pages of Catalog. Use rich sandy loam soil with an equal amount of sifted leaf mould or half as much peat. Set bulbs 2" deep.

They may be planted in the garden any time in the deep south and in the north as soon as danger of heavy freezing is past. Plant 3" deep in the garden in half shade.

Z. rehmanni. Dark rose pink variety. 50c.

Z. rehmanni var. elegans. This variety has light pink flowers of a lovely shade. It is taller, larger and a better grower than the dark pink. More easy also to force in pots, but when forced many report they produce white flowers. Even in the garden some flowers are white with shell pink tintings. But the white ones are still lovely, more so than the white Aethiopica. 50c ea.

Amorphophallis revieri. Sacred Lily of India. This giant aroid is both beautiful and curious. The flower precedes the foliage and resembles a huge Calla in form. It may be 2 ft. or more long. The spathe and spadix are dark chocolate brown. The "perfume" attracts carrion insects but it soon disappears. Use same soil as for Callas and start the bulbs in pots in Mar. After flowering and when warm they should be shifted to a shaded place in the garden. Blooming size, \$2.50. Small bulbs for 50c, \$1.00 and \$1.50. Stock limited, order early.

Sauromatum venosum. Lizard Lily. Like the above this species has rich tropical foliage with spotted leaf petioles. The blade of the flower spathe is about 16" long, 1" wide, yellow with black spots. It lies on the ground and timid persons should be warned. Culture like Amorphophallus. Blooming size, \$1.50. Small for 50c and \$1.00. The latter size may flower. As these flower usually in Mar., order early.

Fancy Leaf Caladiums are the most gorgeous of all foliage plants. Every leaf is a flower, more richly colored than roses, tulips or tigridias. I have been growing ornamental plants for more than 50 years. Very many men have grown more plants than I have but few have grown as many kinds or have seen as many. But I have never seen any plants so gorgeous in coloring as the Fancy Leaf Caladium. They are the richest of all and if you deny yourself the possession of a few or a full collection you must have those stern inhibitions which only martyrs usually possess.

Culture. When bulbs are received, if you wish to store awhile before planting, they should be tightly packed in pure, dry peat and stored at a temperature of at least 60° minimum and 70° is better. We have kept them thus as late as June 1., but examine about May 1 and if sprouted, plant at once.

Caladiums like heat and must have it when starting. Their best starting and growing temperature is 85° or higher. A night temperature of 60° or 70° will not harm them, tho it will slightly slow down growth. The soil usually recommended is 1/3 rich sandy loam; 1/3 well rotted dairy fertilizer; 1/3 fine, rotted leaf mould. One can add a tablespoonful of bone meal to a 6" or 7" pot. Set bulbs about 1" under soil surface. We prefer to surround the bulb entirely by peat and sifted peat can replace all or part of the leaf mould. Don't forget good drainage. Read our potting directions. Water sparingly at first. Just barely moist until sprouts appear. Then gradually increase giving plenty of moisture when in full growth. About half shade. Full sun will ruin them. They must never dry out. In Calif. one can shift to the ground under a tree or lath house in June but there they need daily sprinkling. But they do look gorgeous.

The only way you can save outside grown bulbs is to dig as soon as cool weather approaches, long before frost touches them. Dry in a heated room. When bone dry, pack in peat. In pots they may grow well into the winter if warm enough. With the slightest yellowing of leaves, at once withhold water. If kept bone dry they will grow the second year.

Our bulbs are the right size for 5", 6", or 7" pots. In the smaller pots they should have some feeding, when in mature growth, with weak liquid manure. These are 1½" to 2½" diam.

We are most fortunate to be able to offer the following sorts as several of them are very hard to get.

1. **Candidum.** White leaf with green markings. A favorite.
2. **Cleo.** Green background, with pink, white and yellow veins. Crimson center. Fascinating.
3. **Hortulania.** Bright crimson red leaves, tinted bluish. Very showy.
4. **Itacapus.** Dark red with small bright red dots. Vigorous. Extra fine. Red. Enough said.
5. **Jessie Thayer.** Flushed pink and white with red veins. Stunning contrast. Robust.
6. **Madam Truall.** Deep red purple. Deeper colored ribs. Bronze green edges. Large magnificent leaves.
7. **Mrs. F. Sanders.** Deep rose on dark green, heavily blotched. Large roundish, very showy leaves.
8. **Mrs. W. B. Haldemann.** Red center with narrow green margin. Many leaves. Most gaudy of older sorts.

9. Red Ensign. Bright, metallic red with green margin. I like any color, if it is red.

10. Rising Sun. Background tinted gold. Center, bright dark red with red ribs. You'll not want to spend the gold in this one.

11. Scarlet Pimpernelle. Scarlet, with straw yellow margins on large leaves. A poet's delight.

12. Sorocoba. Transparent, silvery white leaves suffused light pink. Green ribs, veins, edges. The artist's dream.

13. Thomas Tomlinson. Brilliant red with narrow green margin. Warmth in this color. Very showy.

14. Triomphe De L'Exposition. Bright crimson with scarlet ribs on green background. A miracle of color on large leaves.

Here are warm, glowing colors that would quicken the blood of a Gila Monster on a cold desert night. Please order by number. Order early in order to miss none. Please allow us to ship Apr. 1 to northern states or at least Mar. 15. We will insulate well and ship in peat, and earlier if you request it.

Many of these varieties are rare and hard to get but our prices are not advanced. Price, 30c ea. 12 bulbs each separately labelled, \$3.50. All of one kind or all different, but unlabelled, \$3.25 per doz.

Collection. One bulb of each, 14 varieties, all labelled \$4.00. Unlabelled, packed in one bag, \$3.75.

GLOXINIAS—Gesneriaceae

Garden Gloxinias really belong to the genus *Sinningia* and are hybrids developed from *S. speciosa*. This species was introduced before 1817 and named *Gloxinia speciosa*. A few years later botanists discovered the error but the name *Gloxinia* will always be applied by gardeners to these popular tuberous plants. The true botanical *Gloxinia*s make no tubers. They are not florist's flowers and are not offered in catalogues but *Sinningia*s will always be called *Gloxinia*s and we use the name here.

*Gloxinia*s are natives of Brazil, a warm tropical climate, which gives a key to their culture. Probably most failures result from trying to start them or grow them in cold rooms. They are ideal plants for your greenhouse or a warm room in the house.

The bell shaped flowers, originally purple, have been developed into shades of red, pink, purple and white in many variations. Some are blotched, spotted or sprinkled with darker colors. All are very rich and beautiful. The foliage too is rich and exotic in appearance and the plants would be worth cultivating for the foliage alone. It is of soft velvety texture, glowing with almost metallic tints, a rich green marked by gray and white.

Every month of the year we receive requests for *Gloxinia* tubers. They can only be had from Jan. to about April. We usually sell out by March. Later one must pay more and buy plants. We do not list plants because they cannot be sent long distances. Plants thus received are not very satisfactory. I advise you to buy tubers, early.

How to Grow Gloxinias. Pot the tubers in Feb. or Mar. April plantings will do well, if you can get the tubers. We expect to have them as late as April but a few sorts may be sold out. Cover the tubers lightly. *Gloxinia*s are tropical. The tubers must be stored in a warm room, packed in dry sand or peat, not exposed to the air or to moisture. Storage temperature, about 55°.

Our tubers may be set in 5" pots. Read our Potting Directions on a previous page. A good soil is one-third each of peat, rich fibrous loam and sand. If the loam is low in humus, combine it with well rotted leaf mould that has been rubbed thru a 1/8" mesh screen.

A good starting and growing temperature is 60° at night and about 70° day time. A little higher during the day will not hurt them and in the summer when in full growth the temperatures nature provides will be higher. Most successful growers advise full shade for *Gloxinia*s but some advise a south window and much sunshine. The best practice is probably between these extremes. Fortunately the plants will tell us when pleased. A stocky, vigorous, blooming plant is situated correctly. A leggy sprangling plant is receiving too little sun.

Keep them slightly on the dry side when starting, but still moist enough to start growth. When in good growth they require abundant moisture and high humidity of the air. Cold air currents must not strike the plants. Protect always from wind and drafts. Water from a can, using tepid water in cold months. Allow no moisture to touch foliage. The combination of water and sunlight, spots the foliage.

Altho very few of our customers blame their bulbs when an occasional failure results, they do sometimes ask me why nine bulbs grew and one did not. Since long-distance diagnosis is impossible, I tell you here more definitely than most books on bulb culture, the conditions necessary for success. The average amateur will be able to succeed. But if you overwater when starting the tubers, allow the temperature to go down to 34° a few nights, a few tubers may fail. There is a certain amount of tolerance, but not the same degree, in Gloxinias and in all plants. Thus one dies but a dozen may survive if your culture is only 75% correct.

After flowering lessen the water given, gradually. When the tops are dead give only enough water to prevent shriveling. By Feb. some of the tubers will show growth. Repot the tubers as soon as they start to grow.

We offer only Calif. grown Gloxinias, and Tub. Begonias and Florida grown Caladiums because they are the best in the world. I could buy Belgian grown Gloxinias for less and sell them at a lower price, but it has been reported to us that at least some of the European Nurseries are growing strains that have inferior flowers.

We offer 1 1/4"-1 1/2" tubers in the following varieties: **Blanche de Meru**, rose white throat; **Emperor Frederick**, scarlet, white border; **Emperor William**, violet, white border; **Etoile de Feu**, scarlet; **Mont Blanc**, pure white; **Prince Albert**, frilled, dark violet; **Princess Elizabeth**, blue, white throat; **Roi des Rouges**, frilled, dark crimson; **Tigrinia**, from light rose to dark lavender; **Violacea**, soft violet; **Brunhilde**. Pure White.

Faye Davis Hybrids. These are fine hybrids of large size, assorted colors that average at least as good and usually better than the named sorts.

Price, named varieties and hybrids, 50c ea. **Complete Collection**, one bulb of each, 12 var. labelled, \$5.50. Assorted varieties, not labelled, \$5.00 per doz.

Achimines are close relatives of Gloxinias and belong also to the Gesneriaceae. Altho distinctly different, the genera Achimines and Sinnningia are closely parallel in the color and form of their flowers, foliage characteristics, ecology in nature and culture. The tubular flowers are mostly in purple tones altho white, pink and red are seen.

Culture. Achimines tubers are very small and in our arid climate they dry out easily if improperly stored. They should be covered by dry sand and stored at a minimum temp. of 45° It is best to start at once when received if this is Feb. 1, or later. They may be grown in pots or wire baskets. As Achimines are shallow rooting, and the roots need air, fill the pots 1/3 full of drainage material. 8" wire baskets are ideal containers and will hold several plants. If too full, they transplant easily. Line the basket well with sphagnum moss and place the compost in the center. Baskets are listed with Orchid supplies on a later page.

The best compost for Achimines is one part sand or very sandy loam and two parts well rotted leaf mould or leaf mould and peat. Some commercial growers use a little well rotted manure in compost. A compost suitable for Gloxinias is also good for Achimines as they grow in nature in similar soils. It is important that the soil be at least one half humus. The humus may be peat or leaf mould or a combination. The purpose of sand is to insure good drainage. A top dressing of screened, well rotted manure may be given the plants after they are well started. When starting they must be watered very sparingly but not allowed to become dry. When growth has started gradually increase the water supply as these plants must never become dry after starting. Use very weak liquid manure occasionally after plants are well advanced.

Achimines are tropicals and need high humidity and warm conditions. Start them at a temperature of about 60°. When flowering a temperature of 50° is better and by that time you can remove them to the shade of trees, preferably with limbs trimmed high. They must have about 75% shade. They may be

grown in wire baskets suspended under trees with proper degree of sun exposure. But one must not forget to see that they are always moist.

One must not be too impatient about Achimines coming up. Some sorts germinate promptly but others are very slow and may require even 2 or 3 months.

Some commercial growers plant and grow them in flats or boxes 6" or 8" deep, set under trees in the summer as at that time they like cool moist conditions. But overwatering at this time may cause dropping of buds or non-blooming. The flats, of course, must be perfectly drained. We have no means of checking on the exact spelling of the following names and there may be slight errors.

1. **Adele de la Haute.** Large fls., shell pink blending to carmine center. Green foliage.

2. **Ambroise Verschaffelt.** Beautiful, veined, violet blue, edged lilac. Yellow center. Easy and a profuse bloomer.

3. **Carmenita.** Orange red, yellow throat spotted red. Large whitish leaves, densely covered by white hairs giving silvery effect. Medium late.

4. **Longiflora maduna.** Soft lavender, white throat. Dark veined leaves, the prettiest of all Achimines foliage. Blooms medium late.

5. **Longiflora major.** Brilliant, dark blue. Extra fine. A favorite.

6. **Margaret.** Pure white. Very soft, velvety green leaves.

7. **Mauve Queen.** Rosy mauve. Small, dark red purple leaves.

8. **Maxima.** Very large white. Purple eye. Veined red in throat. One of the prettiest.

9. **Mexicana.** Sky blue ground, white throat. Upper petals blotched dark blue, lower with yellow. Ruffled. Leaves, dark green above and bright red below. Very lovely and prolific.

10. **Patens major.** Wine red or fuschia. Small and very pretty.

11. **Pulchella.** Bright, flaming scarlet, with no violet tint. Dwarf plant.

12. **Pulcherrima.** Rich, dark violet. Yellow center. Grilled edge. Bronze leaves. Profuse bloomer, and easy to grow.

We have tried to offer you the best selection to be found anywhere.

Prices. We will make them speak their own piece. Per tuber, 30c, Three of one kind for 80c. Per. doz., all one kind, \$3.00 One tuber of each of the 12 sorts for \$3.25. Three tubers of each, or 36 tubers for \$8.15.

Please order by number only.

Saintpaulias. (African Violets). Seldom or perhaps never before has a plant attained the prominence and the popularity enjoyed by Saintpaulias within only about a half century after its introduction to horticulture.

The nickname, African violet, is unfortunate and has nothing to justify it except a slight outer resemblance. The plants are so wholly unlike in structure, habits of growth and everything else that the nickname is most misleading to an amateur who is growing them for the first time. It does not do Saintpaulias justice.

Saintpaulias cannot be shipped in the winter. We have had them freeze even by express. The plants die as the result of temperatures several degrees above 32°. In fact 40° hurts them but they will recover. If a little lower, they do not recover.

At present we are building an aluminum green-house for the propagation of Saintpaulias and Cattleya orchids. By April 1, we expect to have a nice stock of the former. At about that time we will publish a Saintpaulia Price List. This will be sent to all who have either bought them or expressed an interest in them. We prefer to add only names of those who wish to purchase plants, to this file. A postcard request will place your name on our Saintpaulia mailing list.

BEGONIA FAMILY—Begoniaceae

Tuberous Begonias and How to Grow Them. Tuberous Begonias are wonderfully attractive plants for pots and baskets or in the garden. Their popularity is modern and results from recent improvements of their flowers in color size and form and the great increase in the number of the types offered. Begonias re-

spond generously to the skill of the hybridizer and take on the forms and closely imitate the flowers of Camellia, Carnations, etc., and show many forms the like of which have been seen nowhere else in nature.

The flowers of Begonias are monoecious. This means that the individual flowers are not perfect—containing both male and female parts but that there are male and female flowers, separately produced but on the same plant. The large terminal flower on a stem is a male flower with a stamen. On each side is a smaller female flower with its pistil and ovary. If one wishes to produce seed, the pollen from the stamen is placed on the terminal stigma above the ovary. Even an amateur can produce interesting forms by crossing the types. Seedlings may be grown on a thin layer of sifted compost on top of a porous brick and the brick set into a shallow pan of water.

If Tub. Begonias are potted at once when received they must be watered very little until they start to grow. The better practice is to start them by laying the tubers on top of a slightly moist sphagnum or sphagnum and peat mixed. They may be covered just slightly but with the concave side containing the "eyes" only partly hidden. Keep them only slightly moist at a temperature of 60° to 65°, shaded.

When the tops are an inch or more in height and the tuber has made roots, it may be removed with a bit of the compost into its pot or basket. Probably the common practice of merely storing the tubers and potting them when they start to grow is equally good, tho a little time may be lost. The heated, dry air of a living room is a poor place to store the tubers, to start them or to grow the plants.

The soil for Tub. Begonias may be $\frac{3}{4}$ humus and $\frac{1}{4}$ sand or very sandy loam. For the humus use 2/3 peat or leaf mould and 1/3 well rotted, old dairy manure. All should be well mixed and fine in texture. Soil should be acid, pH 6.5. If not sufficiently acid, add more peat. The addition of small pieces of charcoal or a tablespoonful of soot is useful.

Give liquid manure or soot water, (handful to $2\frac{1}{2}$ gal.) during growth as Begonias of all types are good feeders. They should be fed little and often. When growing well the plants and foliage should be sprinkled well, daily. This will not harm the flowers. Tuberous Begonias need half shade and a cool moist situation. It is better to shift them to outdoors when warm enough as the house air is usually too dry. A lath house is the ideal place in warm weather. Avoid full sun and full shade. When they cease blooming (usually about Dec.), gradually dry them off. The tubers often live over winter in California if not dug but it is better to dig, dry and store here and necessary in cold climates.

Begonia Quality. Tub. Begonias are produced wherever bulbs are grown commercially, but the very best types are the product of California hybridizers and growers. Our Tub. Begonias and Gloxinias are all grown by two world famous California growers. They are the best tubers and they produce the best flowers.

The size of the flowers and their quality does not depend upon the size of the tubers. We offer tubers that are $1\frac{1}{4}"$ - $1\frac{1}{2}"$ diam. If you plan to shift to outdoors start them in 5" pots. If they are to remain in pots use 6" or 7" pots with plenty drainage. Tubers of this size do not make quite as large plants as the 2" tubers but you can grow more varieties in a limited space and at much less cost.

Giant Double Camellia Flowered. The most popular type. The flowers are like large, perfect Camellia blossoms. We offer 17 colors: White, Blush, Pink, Rose, Crimson Rose, American Beauty, Yellow, Apricot, Salmon, Light Salmon, Dark Salmon, Orange, Flame, Scarlet, Red, Cardinal Red, Dark Red. Price 30c ea. \$3.00 doz. All 17 colors for \$4.25.

Giant Double Carnation Flowered. They resemble huge carnation flowers, but are even more perfect. 14 Colors: White, Blush, Pink, Rose, Crimson Rose, Yellow, Apricot, Salmon, Dark Salmon, Red Salmon, Orange, Scarlet, Red, Dark Red. 30c ea. \$3.00 doz. All 14 colors for \$3.50.

Giant Double Picotee. The exquisite double flowers are edged white like a Picotee Tulip. 5 colors: Pink, Rose, Salmon, Apricot, Red. 30c ea. \$3.00 doz. One of each color, 5 bulbs \$1.40.

Double Hanging Basket or Lloydi. The stems are pendulant. Very attractive in pots, hanging baskets or shaded rock gardens. 8 colors: Red, Scarlet, Rose, Pink, Salmon, Apricot, Yellow, Orange. 30c ea. \$3.00 doz. All 8 colors for \$2.25.

Giant Single Frilled or Crispa. Large, profusely frilled and ruffled single flowers. 9 colors: White, Yellow, Pink, Scarlet, Rose, Apricot, Red, Salmon, Orange, 30c ea. \$3.00 doz. The 9 colors for \$2.50.

Giant Single Marginata. These are Crispa type flowers but with a border of contrasting color. The white has a pink border and the salmon has a copper border. They are in assorted colors only. One may not select any desired color. This is a new type. Price assorted colors only, 35c ea. Per doz. \$3.50.

Collection of all 54 varieties listed for \$13.50. This will give a complete range of Tub. Begonia colors in all the popular types.

IMPORTANT

It is important that you read our Terms And Instructions For Ordering, which follows the introductory letter. On very many orders our terms are not complied with and before we can send the bulbs we must write to explain. This delays the order.

When a letter of inquiry accompanies an order, it should be on a separate sheet of paper. Otherwise the entire order must await my attention to answer the letter. Always look for the information wanted in the catalog first. It is usually there.

Your name and address, so familiar to you may not be familiar to us or our packers. We get many we are almost or quite unable to read. Please print or write very legibly. Write the items ordered also in list form, legibly.

We do not enclose order sheets because we use the last fraction of an ounce of weight that we may mail for 1c, in order to print a useful 32 p. catalog. Since 35,000 are mailed that extra postage expense would be \$350.00. Printing and placing in cat. would cost about \$100. Total costs about \$450. That would still not make names, addresses and items always legible. Only one in several hundred are too difficult but please don't be that one.

Be sure to read our Personal Letter. We try to make this interesting and even instructive. Many look forward to it. Frequently there is some valuable information given.

THE ORCHID FAMILY—*Orchidaceae*

We receive many letters stating that the writer's fondest desire is to possess an orchid. They want one that will at least sometime flower, of course. For a good many years we have been planning and working to make this possible.

Many have purchased unestablished orchids. Some have been able to make them live but rather few have been able to maintain them in good health or to make them flower. This is the hard way to start growing orchids. Therefore we sell only established growing plants that with proper culture can be expected to flower in their next season, unless our description definitely specifies otherwise.

Orchids are as easy to grow as Tuberous Begonias, Gloxinias or Amaryllis. What the amateur grower lacks, if he fails, is reliable and understandable information. For that reason we wrote a small booklet, 12 pages with covers, on "How To Grow Orchids." This booklet is not a complete guide to culture of all orchids but it will start you and help you to succeed with the more common and easier grown ones. Price 25c.

We are listing very few orchids in this catalog. Little culture advice is given here. But with all orders we will send our orchid price list which contains rather good culture directions. Still more complete directions will be found in "How To Grow Orchids," (Price 25c).

If interested in purchasing orchids other than those listed here, be sure to send for our Orchid Price List.

Cymbidiums are among the most important commercial Orchids for grow-

ing cut flowers and for home gardeners. They are quite hardy for outside gardens where the night temperatures do not go below 26°. They are only injured, not killed by a few degrees lower. In cases of extremely low temperatures in So. Calif. they can be saved by covering with leaves or straw.

There is a widespread idea that they do not flower freely. That is due to the attempt of amateurs to obtain rapid vegetable growth with no rest period. In their habitat, northeast India there is little rainfall in fall and early winter. The rainfall is very heavy in spring and early summer.

That should be a hint to the grower. We have watered freely in summer, experimentally, and in Aug. and Sept. we let them suffer, just a little, not too much, for water. In Oct. we watered a little more and gave water freely in November and on, unless rains took care of this. The result is a lot of flower scapes.

We explain this also in "How To Grow Orchids."

Just now I have checked a little on our prospects for Cymbidium cut flowers. I noted 8 flowers scapes on a 6 ft. row of small clumps,—2 to 4 pseudo-bulbs each. On a 12"x18" clump there are 8 scapes. We shall break this up next spring into 6 or 8 smaller clumps and we will expect more flowers as this clump is much too large.

A clump of 6 or 8 pseudo-bulbs showed 6 scapes. One single immense pseudo-bulb having one back bulb but no offsets, has two flower scapes, 26 buds. We are reasonably sure of selling \$15.00 worth of flowers from this. But this is quite unusual.

Since we have been giving the plants a 2 months rest in the fall, watering only enough to prevent loss or injury to foliage, we have had abundance of flowers. The too free use of fertilizer is also likely to produce profuse vegetative growth at the expense of flowers. When your plants have developed 3 to 5 pseudo-bulbs, most varieties should flower. Plenty of sun is also favorable. We get few and poor flowers from a few of our plants that are in almost full shade.

We have reduced Cymbidium prices and reduced again. We have about reached the limit. But we will offer a special on the following sorts: **Butterfly**, **Giganteum**, **Insigne**, **Winter Cheer** and **Zebra**. Price per single, mature pseudo-bulb \$5.00. A clump of 4 for \$15.00. **Assorted varieties**, per large bulb \$4.00. Clump of 4 for \$12.00. These varieties are as good or even better than above named ones, but the labels were lost. All are strong, healthy field grown plants.

Cattleya Orchids. We offer 6 fine Cattleyas, all different, some in the bud stage, for \$65.00. See our Orchid Price list for details.

We offered in this list one lot of assorted Cattleya hybrids at \$7.50. These should all flower within one year. We have now divided these into two lots. One lot are smaller plants and we offer them at \$5.00 each. The larger plants have made considerable growth since we issued the price list in July. But they are still priced at \$7.50 ea.

Orchids can be shipped to the north in winter only by express, charges collect. Right now we can send you Cattleya orchids that will flower this spring at a very reasonable price.

Spring, soon after they are thru flowering, is the best time to move Cymbidiums. You may order Cymbidiums now or later and we will ship to the north, by prepaid parcel post about April 1. To the deep south and along the Pacific coast we can ship them now safely by mail if you prefer immediate delivery but we believe Apr. 1, to be a rather better time.

See our Orchid Price List for Orchid Agar, a growing medium for seed, Osmundine, coarse Danish Peat, etc.

Wire Baskets. We have very good electric welded, galvanized baskets. Prices, 10", \$1.10 ea. or \$10.00 doz. 8", 90c ea. or \$8.00 doz. At the single rate we ship prepaid parcel post. At the dozen rate they are shipped by express, f.o.b. These are beautiful, silver grey, non rusting, long lasting. The very best.

Miscellaneous

Shasta Daisy. Esther Reed. The favorite variety and fully double. They must be moved by March 1. If too cold to plant outside, pot them at once and

shift to garden when warm. Single divisions 25c. 3 for 60c. \$2.25 per dozen.

Royal Robe Violet. Latest, best, deepest violet. Long stems. Grow like any other violet, in pots or outside, cool half shade for hot climates. 30c ea. 4 for \$1.00.

Strelizia regina. Bird of Paradise. Musaceae, Banana Family. Large brilliant, bird shaped fls. in winter. Hardy at New Orleans. Easily grown outside in deep south or in tubs in greenhouse, half to full sun. Two year old plants, \$2.00. Blooming size \$5.00. Large, \$7.50 per division singly or in clumps.

THE PINEAPPLE FAMILY—Bromeliaceae

Bromeliads include Billbergia, Cryptanthus, Aregelia, Tillandsia, Neoregelia and many more genera. We list only Billbergias which include some of the most unusual and fascinating plants. Not only are the flowers in intriguing pastel shades but the floral display is made brilliant by the large vividly colored bracts that cover the scape. The leaves form a rosette and are more or less rigid. Some have brightly colored leaves and others are often mottled, striped or barred. All are desirable foliage plants.

How to Grow Billbergias. All are tropical or semitropical and thus are hardy in outdoor gardens only in the deep south. But they are all easy to grow in pots and add distinction as well as beauty to the window garden.

In pots, they should have a soil of $\frac{1}{4}$ sand or sandy loam and $\frac{3}{4}$ peat, or leaf mould. There should be plenty of drainage material in the pot as poor drainage may soon destroy them. Do not overwater when first planted or in winter when semi-dormant. Nor should they become dry enough to shrivel the foliage. In hot weather when they are growing well, water liberally. Keep arink of water in their cups in the center.

In the outdoor garden they should have the same soil as recommended for pots. A few, like "nutans," will grow in nearly any soil but will do much better in the type recommended.

They need about half shade. Too much sun will burn and finally destroy the foliage. Those species and varieties having highly colored foliage do not develop their rich colors when too deeply shaded. Most of our plants are grown in a well shaded Clivia house. When well established and growing, richer colors may be brought out by giving a little more sun than we do.

Billbergia calophylla. Large, bronze-green foliage with contrasting bars of grey. Very large, showy inflorescence of blood-red bracts and blue flowers. \$2.00.

B. corina. Beautiful foliage, barred grey. \$2.50.

B. distachia. Foliage, reddish green with cream spots. Long flower racemes with rose pink bracts and blue flowers with green margin. Blooms early spring and again in late summer. 50c. Three clones, slightly different, one of each for \$1.15.

B. macrocalyx. Grey barred leaves to 18". Bracts rose red. Yellowish green flowers edged light blue. \$4.00.

B. nutans. The most popular of all as it blooms in midwinter and is very lovely. Pink bracts, blue and green flowers. 50c. Three for \$1.00.

B. pyramidalis. Dark green, luxuriant foliage. Dense spike with bright red bracts. Red petals, tipped violet. For an 8" pot. \$2.00.

B. rubro-cyanea. The most colorful in foliage, showing green, white and red combinations. Inflorescence, crimson bracts, flowers green, edged dark blue. To bring out colors in foliage give more sun exposure being careful that foliage does not burn. Two seedlings of this sanderiana-nutans hybrids at \$1.25 ea. or both for \$2.00.

B. speciosa. Foliage green above. Under side greyish green. Bracts rose, flowers pale green tipped with blue. \$2.00

B. thrysiflora. Mature foliage faintly barred. Summer blooming. Vivid inflorescence, scarlet bracts, blue and purple flowers. \$1.50.

B. Zebrina. Leaves with contrasting white bands and spots. Salmon bracts and green flowers. \$2.50.

Collection of all ten varieties, \$16.00.

